This is primarily a study of megalithic sites and tombs in north Karnataka in their various aspects: environmental situations, types and morphology, distributional pattern, modes of burials, certain common features among the types and their indications on the mutual relationships, comparisons, critical review of the evidences and their bearing on the chronology and the megalithic culture of the region in particular.

The book is based on field surveys of the already known megalithic sites in about 50 localities and of those discovered in 52 other localities by the author during explorations in the selected part of the region and on the results of excavations of new types of megaliths. Among the new notices the passage chamber tombs of different types are particularly noteworthy and have for the first time been described and discussed exhaustively.

Rs. 125
$ 25

1573

THE EARLY CHAMBER TOMBS OF SOUTH INDIA

26 FEB 1975

THE EARLY CHAMBER TOMBS OF SOUTH INDIA

A Study of the Iron Age Megalithic Monuments of North Karnataka

26 FEB 1975

By
A. SUNDARA
Reader, Deptt. of Ancient Indian History & Epigraphy
Karnatak University, Dharwar

Preface
H. D. SANKALIA
Professor Emeritus, Department of Archaeology,
Deccan College Post-Graduate and Research Institute,
Poona.

UNIVERSITY PUBLISHERS (INDIA)
DELHI

UNIVERSITY PUBLISHERS (INDIA)
1596, Dewan Hall Street,
Bhagirath Palace,
Delhi-110006
India

First Published 1975
© A. Sundara 1975
A. Sundara (1933)

PRINTED IN INDIA

Published by Praveen Mittal for University Publishers (India), Delhi and
Printed at Vishal Printers, 2/34, Roop Nagar, Delhi-110007

PUBLIC ... MADRAS
26 FEB 1975

Sincerely dedicated to
my revered teachers

Mr. S. Venkataramana Sastry
Prof. K. A. Nilakantha Sastry
Dr. M. Seshadri
Dr. H. D. Sankalia

and to

Mr. C. S. Narayana Rao and Mrs. Indramma Rao
whom I gratefully remember ever

26 FEB 1975
MADRAS

PREFACE

Megalithic monuments, known by various names such as Cists, Dolmens, Stone Circles, have been known in this country for over a century. However, it was Sir Mortimre Wheeler who put them in a proper chronological perspective. The late Mr. V. D. Krishnaswami, under his instructions, surveyed South India and gave us for the first time an idea of the main types of these monuments. Excavations at Maski, Nagarjunakonda and Sanur helped to confirm and also enlarge our knowledge gained from Brahmagiri about the functions of these monuments. However, in a large country like India, there are bound to be regional differences, dependent on ecological, social, chronological and even racial differences. Hence, detailed, careful regional surveys are necessary not only for the megalithic but also for other archaeo-cultural complexes.

Dr. A. Sundara who had already some experience of such regional work as Technical Assistant in the Archaeological Survey of India was entrusted with the detailed survey of North Karnataka. He has accomplished this difficult work—difficult because he worked almost singlehanded, without the manifold facilities which an officer of the Archaeological Survey of India gets—with a rare devotion and zeal.

Megaliths of North Karnataka (now revised as *The Early Chamber Tombs of South India : A Study of the Iron Age Megalithic Monuments in North Karnataka* (in the light of his further work on the subject) is a pioneering work. Here scholars will notice the minute structural features which differentiate the megalithic monuments such as passage chamber of the Konnur type from that of the Kaladgi type, and the port-holed chamber of the Aihole type from that of the Rajankolur type of megaliths. One really wonders whether the differences so intelligently observed by Sundara are ecological or "temperamental." Thus within North Karnataka itself we behold for the first time at least three or four types of monuments and some perhaps belonging to an earlier period, as at Terdal.

Dr. Sundara has attempted by a careful comparative study of their structural features as well as the known contents among these monuments a chronological framework. Thus, whatever can be known and done from a surface survey by an individual has been done. What one ardently wishes to know is the socio-cultural and ethnic causes behind their regional and sub-regional differences. Do these monu-

ments belong to the masses and the rulers, whoever they be, or they are the only visible symbol of the former or ruling warrior class in Karnataka and South India? Only planned, careful excavations not of a solitary monument, but a group of such monuments within each sub-region, will help understand first the reasons behind the structural differences. And a minute study of the contents as well as the skeletal remains, should enable us to know at least a part of the true reasons behind these differences.

Fortunately, Dr. Sundara is well placed, both geographically and otherwise. And he has, above all, retained his youthful zest and enthusiasm for sustained field work whereas continued scholarly pursuits have brought maturity in his writings. Thus, Dr. Sundara and the University of Karnatak are eminently qualified for such planned undertaking, an execution of which alone will throw true light on the significance of the several kinds of megalithic monuments in Andhra, Karnataka, Kerala aud Tamil Nadu.

It is, therefore, hoped and wished that Dr. Sundara and his colleagues would find the necessary encouragement and support from the Karnataka Government and University.

POONA-6
November 4, 1974.

H. D. SANKALIA
Professor Emeritus, Deptt. of Archaeology,
Deccan College Post-Graduate &
Research Institute,
POONA

AUTHOR'S ACKNOWLEDGEMENT

The subject presented herein is the revised and appropriately reduced version of my Ph.D thesis, *Megaliths in North Karnataka,* submitted under the kind guidance of (now) Padmabhushana Dr. H. D. Sankalia, Professor Emeritus at the Deccan College Post-Graduate and Research Institute, Poona, to the University of Poona in 1969. The revision is made in the light of my subsequent further field study of some important megalithic sites in the region and also in Southern Karnataka, especially with regard to the passage chambers and their classifications. Consequently, the chapter on Chronology is suitably enlarged and this enigmatic problem is exhaustively discussed almost completely based on the field data of the region.

The study is, in the main, of megalithic sites and tombs in North Karnataka in their several aspects : environmental situations, types and morphology, distributional pattern, modes of burials, certain common features among the types and their indications on the mutual relationships, comparisons, critical review of the evidences and their bearing on the chronology and the megalithic culture of the region in particular. It is mostly based on the field survey of the already known megalithic sites in about 50 localities and of those discovered in about 52 other localities by me during the explorations in the selected parts of the region and on the results of the excavations of the new types of megaliths in Terdal and Halingali by me under the kind guidance of Dr. Sankalia, from 1964 to 1968 and of the other excavations in the region under study. Among the new notices the passage chamber tombs of different types are particularly noteworthy and have for the first time been described and discussed exhaustively. The study is divided into four parts together containing eleven chapters.

The megalithic tomb-types and their particular architectural features are illustrated mostly by photographs taken by me during my explorations. But large megaliths consisting of double circles or rectangles etc. are illustrated by line-drawings only as they could not be wholly photographed without some artificial contrivance providing a commanding view of the entire megaliths which was not easily possible always to secure in the field owing to the lack of enough time and money.

A research work of this kind is, to all intents and purposes, a team work possible only if willing cooperation, assistance and help from various quarters are

forthcoming. In carrying out this research, I have been exceedingly helped throughout readily and sincerely by my revered teachers, numerous friends, colleagues, scholars of universities and government departments and no less by the people from different walks of life.

The research, mainly based on the field work, could be carried out to a large extent by the liberal, gracious and timely grant of money for a part of the explorations and for the excavations at Terdal and Halingali, by the Deccan College Post-Graduate and Research Institute, Poona, besides the award of a scholarship of the value of Rs. 200 p.m. for nearly one year and seven months.

I am, therefore, immensely grateful to everyone who helped me in various ways, particularly to my 'Guru' Dr. H. D. Sankalia, for his kind guidance, the Deccan College authorities for their timely attention to my requests in the course of the work, the authorities of the University of Poona for kind permission to publish it privately; the Superintending Archaeologist, Archaeological Survey of India, South Western Circle, for the photographs (Plates III; 1., IV,V); the Director, Department of Archaeology, Government of Karnatakā, for the photographs (Plate XXXI); the authorities of the Town Panchayat Committee, Terdal, who, in a very friendly way, helped me in various ways throughout and provided accommodation for my stay during my excavations there ; Messrs. S. K. Joshi, Y. S. Rasar, C. G. Padwal for the line drawings, Drs. M. S. Nagaraja Rao, B. K. Gururaja Rao, Mr. C. Krishna Murthy, Mr. B. Narasimhiah who supplied relevant articles, information, etc.; Mr. H.S. Shankara Narayana Sastry, Mr. M. M. Raichur for their timely help; Dr. S. L. Shantakumari who checked up the first four chapters of the script and particularly Mr. B. Narasimhiah who ungrudgingly checked up the entire typescript of the present book and made useful corrections; Mr. S. S. Bhuti who prepared the photographs; and my wife, Mrs. Bhagyalakshmi Sundara as also Mr. H. S. Venkatasubba Sastry and Mr. H. S. Ramakanta Sastry who patiently and neatly typed the entire manuscript and Shri K.V. Soundara Rajan of the Archaeological Survey, who evinced keen interest and for his valuable suggestions throughout, in my work.

Padmabhushana Dr. H. D. Sankalia was extremely kind to go through the book and to write a useful and valuable preface to it, on my request. My feelings of gratefulness to him are too great for expression.

Finally, Messrs University Publishers (India) kindly accepted the publication and published the book in a neat, superb manner amazingly within a very short period. I am, therefore, immensely thankful to them.

DHARWAR, A. SUNDARA
10th Kartika, 1896 (S. E.)
1st November, 1974.

ABBREVIATIONS

(Used in Text)

b.	=	broad.
cm.	=	Centimetre.
Deptt.	=	Department.
Chap.	=	Chapter.
Dia.	=	Diameter.
Dist.	=	District.
Fig/s.	=	Figure/s.
Govt.	=	Government.
h.	=	high.
Journ.	=	Journal.
km.	=	Kilometre.
l.	=	long.
m.	=	Metre.
No/s.	=	Number/s.
Pl.	=	Plate.
Pt.	=	Part.
S. No.	=	Revenue Survey Number.
Soc.	=	Society.
Tk.	=	Taluka.
t.	=	thick
w.	=	wide.

CONTENTS

Preface by H.D. Sankalia vii
Author's Acknowledgement ix
Abbreviations (Used in Text) xi

PART I : INTRODUCTION

Chapter I : Introduction 3—12

Definition and Scope—Study of the South Indian Megaliths: Past and Present—Megaliths in Karnataka—North Karnataka: Definition of the Area and Historical Importance—Physiography—Climate and Rainfall—Environment and the Development of the Pre-historic Culture.

PART II : EXPLORATION AND STUDY OF THE MEGALITHIC TYPES IN EACH OF THE FIVE DISTINCT ENVIRONMENTAL ZONES IN NORTH KARNATAKA

Chapter II : The Megaliths in the Zone of Kaladgi and the Bhima Series 15—41

Environment, Megaliths in the Zone of the Kaladgi Series

I. The Konnur Group

Megalithic Tomb Types : 1. Passage Chamber; Long Barrows: Certain Peculiar Minor Features of Some Passage Chambers; 2. Small Square Chambers; 3. Round Barrows; 4. Cairn Stone Circles; Raw Materials and Dressing; Megalithic Tomb Types of the Konnur Group, their Frequencies.

II. The Saundatti Group

The Megalithic Sites; The Types of Megalith; 1. Passage Chamber Tomb; Aberrant Type of the Passage Chamber; 2. Round Barrows; Megalithic Tomb-types of the Saundatti Group; Their Frequencies.

III. The Terdal Group

The Megalithic Site; Types of Megaliths; (i) The Passage Chambers of the Greek or Latin Cross Type; (ii) Passage Circular Chambers; (iii) Passage Chamber of the Konnur Group Type; 2. Small Square Chambers; 3. Cairn Stone Circles; Raw Materials and Dressing.

IV. The Aihole Group

The Megalithic Sites; Types of Megaliths; 1. Passage Chambers, Small Square Chambers; 2. Chambers with or without Port-holes.

Port-holed Dolmenoid Cist with Passage; 3. Stone Circles; 4. Barrows; A Hexagonal Tank in Aihole; A Stone Anthropomorphic Figure; Megalithic Tomb-types of the Aihole Group; Their Frequencies; Raw Materials and Dressing.

V. The Kalagdi Group

Types of Megaliths, The Passage Chamber; Stone Circles; Raw Materials and Dressing; Types of the Megaliths in Kaladgi; Orientations of the Megaliths of the Kaladgi Group.

Chapter III : Megaliths in the Zone of the Dharwar Rocks 42—48

Environment, The Megalithic Sites; Types of Megaliths; 1. Round Barrows; 2. Cairn Stone Circles; 3. Passage Chambers; The Megalithic Site at Rajawala; The Megalithic Site; The Megalithic Type; Dolmens; Raw Material and Dressing.

Chapter IV : Megaliths in the Zone of the Bhima Series 49—62

Environment, The Megalithic Site.

I. The Talikot Group

1. The Passage Chambers; 2. Port-holed Dolmenoid Cist; 3. Cairn Stone Circles.

II. The Hagaratgi Group

The Megalithic Sites; 1. Passage Chambers; 2. Chambers with or without Port-hole; 3. The Port-holed Dolmenoid Cists; 4. Cairn Stone Circles; 5. Round Barrows.

III. The Rajankolur Group

The Megalithic Site; Types of Megaliths; 1. Chambers with or without Port-hole; 2. Small Dolmenoid Cists and Cist; 3. Cist Circles; Raw Materials and Dressing.

IV. The Jewargi Group

The Megalithic Sites; The Megalithic Site at Jewargi (Bk); Types of Megalithic Burials; 1 and 2. The Cairn Stone Circles without Passage; 3. The Cairn Stone Circles with Passage; Barrows with and without Passage; Cists; A Note on the Other Megalithic Sites Near Jewargi : 1. Mandewall Site; 2. Ijeri Site; 3. Shahabad Site.

Chapter V : Megaliths in the Peninsular Gneissic Complex Zone 63—90

Environment, Megalithic Sites.

I. The Lingsugur Group

Megaliths in the Lingsugur Area; 1. Stone Circles; 2. Oblong Graves; 3. Oblong Graves: Oblong Graves; 4. Square Platform with Graves at the Centre: 5. Square Platforms with Graves Having Ash Circle in between; 6. Square Platforms Enclosing Only Ash Circles; Megalithic

remains in Tawargeri; Megaliths in Piklihal 1. Cairn Stone Circles; 2. Dolmenoid Cist with a Forecourt : The Dolmenoid Cist; Circle; Forecourt; Width of the Stone Rows; 3. Stone Alignments.

II. The Sangankallu-Hire Benkal Group

1. Oblong Cairns; 2. Stone Circles; 3. Menhirs; Megaliths in Hire Benkal Area; The Megalithic Site at Hire Benkal; Megaliths of the Western Group: 1. Port-holed Dolmenoid Cist-Circles; 2. Oblong Dolmenoid Cists or Cists: 3. Irregular Polygonal Chambers; 4. Rock-Shelter Chambers; II and III : Megaliths of the Central and Eastern Groups : 1. Dolmens with or without Port-hole; Dolmens with Closed Port-hole; 2. Oblong Dolmenoid Cists or Cists (Plate XIII; 1) Megaliths at the Foot of the Hills : Cairn Stone Circles; Megaliths in Mallapur and Koppal; Megaliths in Belhatti—Devihal Area.

III. The Manvi Group

Types of Megaliths; 1. Cairn Stone Circles: The Megalithic Burials in Gorkal; 2. Dolmens (?).

IV. The Maski Group

Types of Megaliths; 1. Cairn Stone Circles.

V. The Shahapur Group

The Megalithic Sites; Types of Megaliths; 1. Cairn Stone Circles; 2. Stone Alignment; 3. A Stone Rectangle; Other Sites with Stone Alignments in the Shorapur—Shahpur Area : Shahapur area.

VI. The Gajendragad Group

Pit-Burials in Gajendragad Area ; The Megalithic Types ; Megaliths in Gugalmari (Dist. Bijapur); Stone Circles ; A Stone Rectangle ; Pit-Burials; Megalithic Remains in Hirehal Kurgovinkop, Kittur and Kallur; The Megalithic Sites ; Megalithic Remains in the Sites.

Chapter VI : Megaliths in the Zone of the Deccan Trap **91—92**

Environment ; The Megalithic Sites ; Raw Materials and Dressing.

PART II : EXCAVATIONS OF THE MEGALITHIC SITES IN NORTH KARNATAKA

Chapter VII : Megalithic Sites and their Excavations **95—133**

1. Passage Chambers of the Four Sub-Types ; i. Passage Chambers of the Konnur Type : Excavation of ; Excavations of a Long Barrow in Hunur; Pot-Burials ; Antiquities from the Burials ; Some Observations on the Excavations ; ii. Passage Chambers of the Greek or Latin Cross Type and Passage Circular Chambers : Excavations of ; Object of the Excavations ; Terdal : Megalith I ; Terdal Megalith II ; Halingali : Megalith I (Plate XIII ; 2) ; Halingali Megalith II. (Plate XIII ; 1) ; Halingali : Megalith III ; Antiquities from the Excavated Megaliths : 1. Human Bones ; 2. Pottery : Terdal : Megalith I ; Terdal : Megalith II ; Halingali : Megalith I ; Halingali: Megalith II;

Halingali : Megalith III ; The Red Ware Pottery ; The Black-and-Red Ware Pottery Types ; The Red Ware Pottery Types ; 3. Iron Objects from Megalith III, Halingali ; I. Saucers ; II. Straps ; III. Hook ; IV. Carved Blade (?) V. Clip (?) VI. Rods ; 4. Copper Object : Dating ; 5. Pottery Types from the Disturbed Passage Chamber Tombs of the Konnur and Saundatti Groups : (Fig. 18) ; iv. Passage Chambers of the Kaladgi Type ; 2. Small Square Chambers ; 3. Port-holed Dolmenoid Cist Circles ; 4. Dolmens with or without Port-hole ; 5. Oblong Dolmenoid Cists or Cists : Excavation of ; Passage Cairn Stone Circles : Excavation of 1. Excavations of Chikanhalli : Cairn ; I. Architectural Features ; II. Excavations (a) Stratigraphy ; (b) Contents of the Cairn : (c) Burial Furniture ; 2. Excavations at Jewargi (Bk) : First Cairn (or Cairn A) ; I. Architectural Features (Surface) ; II. Excavations : (a) Stratigraphy ; (b) The Cist ; (c) Human Skeletal Remains in the Cist ; (d) Other Antiquities : 1. Pottery ; 2. Iron Objects ; 3. Beads ; Second Cairn ; I Architectural Features (Surface) ; II. Excavation : (a) Stratigraphy ; (b) No Cist ; (c) Human Skeletal Remains ; (d) Pottery ; (e) Iron Objects ; Third Cairn : I. Architectural Features ; II. Excavation : (a) Stratigraphy ; (b) No Cist ; (c) Human Skeletal Remains ; (d) Antiquities ; (i) Pottery (ii) Iron Objects ; III. Remarks : The Fourth Cairn ; I. Architectural Features ; II. Excavation : (a) Stratigraphy ; Cist ; Mode of Burial ; Burial Furniture (i) Pottery ; 2. Iron Objects ; Cairn B ; (a) The Cist ; (b) Human Skeletal Remains ; (c) The Burial Furniture ; Cairn C ; Cairn D ; (a) The Cist ; (b) Human Skeletal Remains ; (c) Burial Furniture Cairn E ; The Cist : (a) Human Skeletal Remains ; (b) Burial Furniture ; Excavations at Andola ; Cairn No. 1 ; I. Architectural Features ; II. Excavations ; (a) the Cist ; (b) Human Skeletal Remains ; (c) The Burial Furniture ; Cairn No. 2 ; I. Architectural Features : II Excavations ; (a) The Cist ; (b) Human Skeletal Remains (c) Burial Furniture ; General Observations on The Excavated Megaliths ; 7 and 8. Pit-Burials and Cairn Stone Circles : Excavations of : Pit-Burials : I. The Megalithic Burials in the MSK-10 ; II. Burials of Class B (ii) and Class B (iii) in MSK-9 ; Cairn Stone Circle ; Excavations of the Megalithic Habitation Sites at Maski : Megalithic Period ; The Pit-burials of the Manvi Group ; Pottery Types from the Habitation Sites at Rajalabanda and Gorkal ; Pit-burials of the Gajendragad Group ; Megalith I at the Foot of the Someshavara Hill in Gaudageri-Unachgeri Area ; (i) Iron Objects ; (ii) Pottery ; (iii) Skeletal Remains ; Megalith II at the Western Foot of the Gajendragad Hill in Rajur Area ; (i) Iron Objects ; (ii) Pottery; Megalithic Habitation Site on the Gajendragad Hill ; Megalithic Pottery from the Neolithic Habitation Sites at Hirehal, Kurgovinkop, Kittur and Kallur ; Megalithic Remains at Watgal ; Megalithic Cultural Remains in the Area of Shahapur Group of the Megalithic Sites ; The Megalithic Habitation Sites in Vibhutihalli, Rakhamgeri

and Tadbidi ; Rakhamgeri Site ; Tadbidi Site ; Megalithic Habitation Site at Hire Benkal , Excavations of Pit-Circles in the Deccan Trap Zone ; Iron Object ; Megalithic Pottery from Masali (Kd) : Round or Oblong Barrows : Excavations of ; Pottery from a Disturbed Round Barrow in Nagvand ; Ancient Sites at Hallur and Kamalapur : Excavations in Hallur ; Some Observations on the Excavations at Hallur on the Site at Kamalapur ; Menhirs and Stone Alignments ; Irregular Polygonal Chambers and Rock-Shelter.

PART IV : ASPECTS OF THE MEGALITHIC CULTURE IN NORTH KARNATAKA : A CRITICAL REVIEW

Chapter VIII : Megalithic Tomb Types of North Karnataka, South India and Outside : Comparative Study 137—153

Preliminary Remarks ; 1. Passage Chamber Tombs; Small Square Chambers; 2. Port-holed Chambers of the Brahmagiri Type; 3. Port-holed Chambers of the Rajankolur and Hire Benkal Types; 4. Oblong Cists or Dolmenoid Cists; 5. Pit-Burials; 6. Pit-Circle; 7. Round or Oblong Barrows; 8. Stone Alignments and Menhirs; 9. and 10. Rock Shelters and Irregular Polygonal Chambers; Megaliths of North Karnataka and North India; Megaliths of North Karnataka and Parallel Megalithic Types from outside India; 1. Passage Chambers; 2. Port-holed Chambers; 3. Stone Alignments; General Observations.

Chapter IX : The Megalithic Culture in North Karnataka : A Critical Review 154—197

1. Locations of the Sites; 2. Tomb Types and Other Megalithic Monuments; I. The Chamber Tombs : (i) Passage Chambers; Passage Chamber Types : A Comparison; (ii) Port-holed Chambers; The Types : Their Developmental Implications; II. The Unchambered Burials; (v) (vi) (vii) Pit-Burials and Circles and Round Barrows; The Type : Their Developments; (viii) Menhirs; III. Megalithic Monuments; (ix) Stone Alignment; (x) & (xi) Polygonal Chambers and Rock-Shelter Chambers; Some Other Peculiar Megalithic Monuments in Karnataka and Outside; 3. Modes of Burials; I. Inhumation Burials Containing; II. Secondary, Post-Excarnate Fractional Single Burial; III. Secondary, Post-Excarnate Fractional and Multiple Burial; IV. Single or Multiple, Extended and Multiple Fractional Burials; V. Post-Cremation Burials; 4. Pottery; 5. Graffiti ; Fabrics, Types and Distributions; 5. Iron and other Metal Objects : (i) Iron Objects ; Sanganakallu ; Hallur ; (ii) Copper and Gold Objects; Gold Objects ; 6. Rock Paintings ; List of the Sites with Painted Rock Shelters in North Karnataka ; Rock Paintings in Hire Benkal ; Rock Paintings : Locations and Descriptions. Rock Painting No. 1 ; Rock Paintings No. 4 ; Rock-Painting No. 6 ; (a) Paintings on the Ceiling ; (b) Paintings on the Hind Wall ; Rock Paintings Nos. 1, 4 & 6—A Critical Analysis : Rock Painting No. 1 ; I. Human Figures : II. Animal

Figures ; Rock Paintings No. 4 ; Rock Painting No. 6 ; III. Geometrical Design : I. Human Beings; (i) Horse-Riders; (ii) Human Beings in Singles; (iii) Human Beings in Rows ; II. Animals ; III. Design ; General Characteristics of the Paintings ; Implications and Authorship ; 7. Skeletal Remains and Megalith-Builders : Skeletal Remains; Racial Types; Megalith Builders; 8. Origin and Diffusion of the Megalithism ; (i) Megalithic Architecture; (ii) Iron ; (iii) The Black-and-Red Ware ; (iv) People ; Summary.

Chapter X : Chronology 198—216

1. The Distribution Patterns ; I Types : Areas of Concentration (Fig. 1) ; II Types : Areas of the Overlap and Mutual Influence (Fig. 1) ; III Types : Geographical Contiguity; 2. The Development of the Megalithic Types ; The Chamber Tomb Types; The Port-holed Chambers ; Passage Chamber ; The Konnur Type ; The Kaladgi Type ; The Port-holed Chambers : Their Development from the Passage Chambers ; The Port-holed Chambers of the Western Ghat and Coastal Region ; Their Bearing on the Problem of Development ; Orientations of the Chamber Tombs ; The Development of the Other Types of Megaliths ; The Sequence and the Associated Cultural Remains ; Pottery ; Types of the Pottery ; Certain Chalcolithic Pottery Types : Their Influence ; Other Antiquities ; The Cultural Overlaps and C-14 Datings ; Port-holed Chambers of the Brahmagiri and Hire Benkal Types ; Brahmagiri Evidences; Port-holed Chambers of the Aihole and Rajankolur Types ; Passage Chamber of the Konnur and Kalaḍgi Types ; Menhirs and Stone Alignment.

Chapter XI : Megalithic Culture in North Karnataka : An Outline of the Salient Features 217—226

Location of the Sites ; Architecture ; Domestic Architecture ; Sepulchral Architecture ; Economy ; Utilitarian Objects ; Iron Objects ; Pottery ; Ornaments ; Art, Burial Practices ; Religion ; People ; Cultural Contacts ; Racial Types of the Megalithic-Builders ; Origin, Diffusion and Date of Megalithism.

Megalithic Sites of North Karnataka : A List 227

Description of Plates and Figures 230

Abbreviations (Used in Bibliography) 235

Bibliography 236

Plates

Figures

Index 249

PART I

INTRODUCTION

26 FEB 1975
MADRAS

26 FEB 1975

1

Definition and Scope

The term 'megalith', in archaeology, is, as is well known, defined as a tomb built with big stones in natural forms or roughly dressed or even a grave marked with a prodigious rude stone or an excavation in soft rocks containing remains of dead human beings. It is also applied to erections of huge stones, memorial or religious in function. Besides, graves without any lithic appendage, but by virtue of their possession of certain other complex traits, especially pottery, commonly found in the other types of megaliths, are also classed as megaliths.

In different parts of the world, the custom of erecting megaliths on a large scale among different communities began from the Neolithic times onwards and continued in the Bronze Age and upto the late Iron Age, so much so that several thousands of megaliths are found in different parts of Western Europe, the Mediterranean region (Dorothy Davison ; 1951. Glyn Daniel ; 1963 etc.), some parts of Western Asia, India (James Fergusson ; 1872. Eric Peet, T ; 1912), Japan (Gowland) and South-East Asia (Reisenfold Alphonso ; 1952). They vary, as it should be in view of the vastness of the regions, diverse environments and the cultural backgrounds, in structural forms, modes of burials, cultural characteristics as known from the burial contents and chronology. Where, when and how the ideas of megalithism originated and diffused is indeed still a complex question (Gordon Childe, V ; 1957. Elliot Smith ; 1913. Peake, H. J. E.; 1916). Similarly, about the authors of these megaliths, their society and culture, not much is satisfactorily yet known.

Even today a kind of megalithism is a living tradition among some aboriginal tribes in some parts of the world including India : for instance, in north-east India among the Khasis in Assam, the Mundas in Chota Nagpur (Haimendorf ; 1945 : pp. 73-86. Krishnaswami, V.D. ; 1949 : pp. 41-43) and in Kerala among the Malyarayan (Krishna Iyer, L.A. ; 1967 : p. 51).

Study of the South Indian Megaliths : Past and Present

In India, especially in the south, ever since the first notice of some types of megaliths in the region of Kerala by Babington (1823 ; pp. 324-330), many hundreds of sites were discovered sporadically by archaeologists, or the government officials and

private individuals in the course of a little more than a century (Ramachandran, K.S. 1971). As far as the published references are concerned no other class of prehistoric remains has attracted so much attention of so many people from various walks of life as did the megaliths by virtue of their curious and bold appearance on the surface. Till about 1944 several megaliths in different places were dug out by antiquarians to know about them and by treasure hunters as well. Thus, material from the megaliths, indicating their sepulchral character accumulated enormously, by and by, but with little progress in obtaining information about their chronology and their builders. Various diverse theories about their authors, age and functions were put forward (Boswell, J.A. ; 1872 : pp. 150-51. Congreve, H ; 1844 : pp. 47-51, 1861 : pp. 205-211; 1878 : pp. 150-168. Taylor ; 1851 : pp. 179-196 ; 1853 : pp. 380-429 ; 1862 : pp. 329-362. Panchamukhi, R.S. ; 1946 : pp. 10-28). However, it should be noted that the accounts of megalithic sites and the remains by some of the early investigators were remarkable for their faithful observations and attempts of classifications, no matter what theories they propounded on their findings. The megalithic excavations in Dist. Gulbarga by Taylor (1851 & 1853), in Adichanallur by Alexander Rea (1902-03), in Chandravalli and Brahmagiri by Krishna (1931 & 1942) and a study of the remains and the tribes of Nilgirs by Breeks (1837) are instances to the point. Also Breeks (1837), Taylor (1853), and Mackenzie (1873 : pp. 7-10), felt the necessity of having unambiguous terminologies for the megalithic types and each gave a list of terminologies and their definitions. Realising the importance of the problem as suggested by the nature and extent of these remains all over South India, some did emphasise the need for a systematic study. Breeks (1837 ; pp. 109-110) and others, especially Hunt (1916), when he dealt about the megaliths of Hyderabad region, earnestly pleaded for a scientific study. In fact, the well defined points on which the study should be carried out, given by Hunt (1916 ; pp. 185-222) were indeed most comprehensive.

These pioneer attempts had revealed that the South Indian megaliths in spite of the varied structural forms were sepulchral and generally contained :

(i) post-excarnate skeletal remains of more than one individual ;
(ii) a typical pottery described as the black-and-red ware and also the red ware and sometimes the black ware pottery ; and
(iii) iron objects.

Some megalithic types were broadly found to be comparable to those of Western Europe. But the chronology, the builders and their material culture of the megaliths were little known, as no attempt was made to relate them to a relevant habitation site and to know their relative position in the culture sequence of the region.

By about 1944-47, therefore, Wheeler (1948 : p. 185) observed : "South India is eminently a land of temples, but even the temples are there outnumbered by these ancient tombs. And we know scarcely anything about them. A thousand megalithic cists might be excavated with the utmost care without any significant addition to our knowledge of their chronology. Only by placing their culture in a related culture sequence, such as an adjacent town site could alone be expected to provide, was it possible to ensure a substantive advance of knowledge". And in view of the similarity

apparently suggesting kinship, of some megaliths with those in the other parts of the world (Iran, Caucasue, Mediterranean and Atlantic) he felt that a preliminary need was more knowledge of the character and distribution of the megaliths in India.

With regard to the first requirement Brahmagiri (p. 187) was found to fulfil the desired conditions and was excavated (pp. 181-308). The value of the methods and materials of the excavations is too well-known for repetition here. A sequence of three cultures, *viz.*, the early historical (*i.e.* the 'Andhra'); the megalithic; and the Neolithic (*i.e.* 'polished stone-axe') cultures and distinct overlaps in between them in turn, were methodically and unambiguously discovered. The cultures in due considerations of the evidence from the excavations, could be relatively dated. The megalithic culture, in particular, was chronologically placed from after circa 2nd C. B. C. to the middle of 1st C.A.D. (pp. 200-202).

Regarding the second objective, from about 1944, a detailed ground survey of megaliths in three regions, Dist. Chingleput and the former states of Cochin and Pudukkottai in South India, initiated by the Archaeological Survey of India, was carried out by Krishnaswami (1949 : p. 36). Megaliths discovered in large numbers in these explorations were systematically studied, classified into clear types and terminologies for each of these types were precisely defined and standardized (pp. 35-44). Subsequently, some of these were excavated in order to know constructional details of the types with reference to the geology of the respective regions, modes of burials and the characteristics of the burial furniture (Thapar, B.K. ; 1952 : pp. 3-8. Banerjee, N.R.; 1954-55 : pp. 20-21 and 1956 : pp. 21-34 ; Banerjee, N.R. and Soundara Rajan, K.V.; 1959 : pp. 4-42).

Later on, a few more megaliths were excavated in different areas by way of salvage operations as at Nagarjunakonda (IAR ; 1954-55 : pp. 22-23 ; 1955-56 : pp. 23-26 ; 1956-57 : pp. 35-38 ; 1957-58 : pp. 5-9 ; 1958-59 : pp. 5-10 ; 1959-60 pp. 5-10 and 1960-61 : p. 1) or to know their characteristic features in the respective localities as at Kunnattur (IAR ; 1955-56 : p. 23 ; 1956-57 : pp. 31-34 and 1957-58 : pp.37-38), Junapani (IAR ; 1961-62: pp. 32-34), Kesarapalli (AI No. 22, 23: pp. 32-74) etc. Besides, many more megalithic sites have been brought to light every year since 1957 in the course of village to village survey of antiquarian remains by the Archaeological Survey of India (IAR ; from 1957-58 up-to-date). Scholars are also earnestly trying to examine afresh various aspects of the problem : the authors (Haimendorf ; 1953 : pp. 127-135, Gordon, D.H. ; 1960 : pp. 174-185 ; Banerjee, N.R. ; 1962: pp. 180-189. Subba Rao, B. ; 1962 : pp. 132-151) ; the chronology (Banerjee, N.R. ; 1961 : pp. 26-28) ; iron (Gordon, D.H. ; 1960. Soundara Rajan, K.V. : 1963 a : pp. 1-12) and others, as and when new evidences turn up and also in the light of the relevant early Tamil literature (Srinivasan, K.R. , 1947 : pp. 9-16 ; 1958-59 : pp. 1-14 and 1690 : pp. 131-138). Dr. B.K. Guru Raja Rao has surveyed all the published materials on the subject for the first time and given an integrated critical account in his published doctoral thesis, *The Megalithic Culture of South India* (1972). In Feb. 1958, a seminar on Indian megaliths was organised under the auspices of the Banaras Hindu University the proceedings of which are published. Recently Dr. S. B. Deo has published his report on the *Excavations at Takalghat and Khapa* (1970) and *Problem of South Indian Megalithic Culture* (1973).

Megaliths in Karnataka

What is now primarily required is a systematic and absolutely thorough survey of as many megalithic sites as possible in the other regions as well, especially, Andhra Pradesh, North Karnataka, where megaliths of the South Indian complex in a considerable number are already known to have been found but without being adequately studied, on the lines of what Krishnaswamy did in South India, to know in the first place the extent of their affinity with and differences if any, from those of South India and ultimately to evolve a clear and comprehensive picture of the megalithic culture of South India and the Deccan, in all its ramifications. As recently as 1967, Wheeler (Krishna Iyer ; 1967 : pp. XI-XII) repeated : "What is needed more than anything else in the present state of ignorance is local study rather than overall conjecture. Megaliths both inside and outside India, have been bedevilled by conjecture... But it is hoped that he, or some one after him, may in due course (and before too long) carry through detailed regional surveys with all manner of illustration, on the lines adopted so profitably by Mr. V.D. Krishnaswami in the Madras region."

Karnataka is one of the regions having in abundance megalithic remains of varied types in almost all its districts. Medows Taylor was the first to report about the megaliths in Dists. Gulbarga, Raichur, Bellary etc. Subsequently, many megalithic sites were noticed and reported by James Burgess from Konnur and Aihole (1874 : pp. 306-08), the Department of Archaeology (ARDAH ; 1915-16 : p. 6-10 ; 1927-28 : pp. 25, 27, 30-31 ; 1933-34 : p. 7 ; 1935-36 : pp. 22-29,) and the Department of Geology (JHGS ; 1936 : p. 36 ; 1941 : pp. 85-89, 188 ; 1947 : pp. 56, 517) of the former Hyderabad State from Dists. Gulbarga and Raichur, the Kannada Research Institute of the Karnatak University, Dharwar, from Dists. Bijapur and Dharwar (ARKRBK ; 1939-40 : p 11; 1941-46 : p. 3, 23 ; 1947-52 : pp. 12, 14, 21, 22 28, 34), by the Archaeological Survey of India from Dists. Bijapur and Dharwar (IAR, 1958-59 : p. 32 ; 1959-60 : pp. 37-38 ; 1960-61 : p. 28).

The southern part of Karnataka adjacent to Tamil Nadu on the south-east and Kerala on the south-west, also, is reported to have megaliths in abundance (Seshadari, W. ; 1960 : pp. 1-4). Excavations at Sanganakallu (Subba Rao, B ; 1948) and Maski (Thapar, B.K. ; 1957) while confirming the relative position and the characteristics of the megalithic culture obtained in Brahamagiri, have produced indices of culture as the basis for further investigations.

Further, the reported megalithic sites are so varied that a detailed study of them would be rewarding in furthering the knowledge of the culture. For instance, Hire Benkal (ARDAH ; 1935-36 : pp. 28-31) is an extensive site with hundreds of port-holed chambers. Konnur has passage chambers which have no parallels elsewhere in South India and the Deccan, representing altogether a different megalithic architectural tradition. But this is the only one site of its kind known, then : their distribution in the region was hardly known. The cursory note on the megaliths in Hanagandi (ARKRBK ; 1953-57 : p. 44), seemed to indicate a new type of megaliths. The excavations at Maski by the Archaeological Survey of India have revealed a few new types of megalithic graves unusually in the habitation area (Thapar, B.K. ; 1957 : pp. 26-33).

Thus, these isolated sites with different types of megaliths in different parts of North Karnataka forming an important region were sufficiently promising for a detailed survey of the region. But for the stray references to and casual and brief notes about these sites neither a complete account with appropriate illustrations of any of these explored sites was given ; nor systematic explorations for substantiation and for further clues wherever necessary, were carried out previously. A systematic, careful and first hand study was, therefore, needed.

With the objective defined above mainly in view, therefore, a field survey in the selected parts of the six Dists. (Belgaum, Bellary, Bijapur, Dharwar, Gulbarga and Raichur) in the region was carried out by me from 1964 to 1968. Subsequently a few more sites in Bellary, Shimoga and South Kanara Dists. were studied.

Prior to my explorations, there were about 172 localities known to have been with megalithic remains, most of them being in Dists. Gulbarga and Raichur. The sites in the other four districts were very few and far between. After selecting some apparently promising localities in different parts of the region, keeping in view of the types and the environment, I explored 50 localities known as having megalithic remains and in the course of these explorations, I discovered megalithic remains in about 52 other localities, most of them in disttricts Bijapur, Northern Dharwar and Belgaum which were least known. Thus, at present, there are about 224 localities with megalithic remains, known in North Karnataka. A list of these sites is given at the end. The locations of the sites are shown in Fig. 2. But it should be noted that there are not as many sites as the number of the localities. A single site may be extending in about four or five localities and there are many such sites. Secondly, it is found that the sites generally are scattered, but heavily concentrated here and there and so close to one another in some areas that they cannot be treated separately from one another. Thus, these sites can be clustered into roughly about sixteen groups mainly from their geographical proximity.

Previously, a few megalithic habitation sites were known. Among the newly noticed, there are twelve habitation sites, some of these have given some idea about the magalithic pottery which otherwise was not and could not have been known from the nearby megaliths without excavations in those areas, as for instance at Hire Benkal, Vibhutihalli etc.

Similarly, pottery, human skeletal remains, iron objects from the disturbed burials of almost all the groups of megaliths, could be collected in considerable number. The structural details, burial contents and their characteristics of different types of megaliths to some extent, thus, could be known for the first time.

Regarding the types, previously passage chamber tombs were known from Konnur only. Now there is a chain of nineteen localities with passage chamber tombs in geographical continuation of Konnur, giving an idea about the distribution pattern of the type and the stages of the structural development. The megaliths at Terdal and nearby localities, are found to be passage chambers of the Greek or Latin cross type different from that of Konnur and perhaps are unique in typology. The megaliths at Kaladgi, Hallur and Rajawala include passage chambers which differ in many respects from those of Konnur and Terdal groups and thus form a type by themselves

known for the first time. Aihole was known previously as having port-holed chambers. I found that the site continued to extend into the revenue limits of the nearby Khyaddigeri and Chilapur, but with passage chamber tombs and cairn stone circles. The Aihole-Khyaddigeri group thus represents the meeting ground of an altogether two different tomb building traditions. Besides, it provides a link in the geographical extent of the passage chambers noticed as far east as Lingusugar, Piklihal and Tawargeri. Thus the extent and distribution of the passage chambers peculiar to North Karnataka, could be well defined. Similarly, the study of the menhirs in Nilaskal (Shimoga Dist.), Shimoga on the one hand and stone alignments at Vibhutihalli, Hanamasagar, etc. on the other, have clearly indicated that they differ from each other in typology, characteristics, functions and probably also in date.

Among the types, but for a sporadic digging of a passage chamber tomb in Konnur by an European (Burgess, J; 1874 : pp. 306-8) a complete account of which was never published, no megalith of the passage chamber type which forms one of the distinctive types in the region, was systematically excavated. Specimens of the other types such as cairn stone circles, menhirs (Thapar, B. K.; 1957) and port-holed cists (Wheeler, 1948) in this and the adjoining regions were systematically excavated and well documented. In order to know therefore the structural details, modes of burials and the nature and kinds of the burial contents and their affinity to the other known types of this region and of South India, three passage chamber tombs of the rare types, two cairn stone circles and a chalcolithic round barrow in Terdal and Halingali, were excavated. Unfourtunately, excepting the chalcolithic round barrow, the megaliths were found to have been badly disturbed before. However, potsherds giving an idea about the types and the fabrics, iron objects and small quantities of extremely small pieces of human bones, could be obtained.

In the following pages, is essentially a detailed descriptive study of the megalithic tomb types in their several aspects from the known sites and of the others discovered in the course of my explorations in each of the four geological zones of the region with a brief note on the geology of the zone at the outset in order to know the extent of the influence of the respective rock materials on the types of the megaliths with which they are built. Further, it contains a critical analysis of the field data and an estimate of their bearing on the megalithic culture in North Karnataka.

Among the various types of megalithic burials in North Karnataka, the chamber tombs of different types such as passage chambers, port-holed chambers, oblong chambers, cists are found in imposingly huge numbers, sometimes exceeding even 1,000 in a single site, extending over an area of two to five villages, in a number of localities covering almost continuously major part of the region. The substantial and essential part of the study is therefore concerned with the chamber tombs.

Further, in the course of the study of these chamber tombs and unchambered megalithic burials, it is found provisionally that the passage chambers of the type found in Konnur, are the earliest in Karnataka in particular and in South India in general and from them the other types of chamber tombs were gradually developed. Besides, this megalithic tradition had a powerful impact on the other people of the region who were in the chalcolithic/neolithic stage before their contacts with megali-

thic builders. Consequently, their earlier burial practices acquired megalithic character and complex by lining the burial pit with slabs and/or raising cairn packing over the burial pit sometimes bound by a stone circle and by using megalithic black-and-red ware pottery etc., Round barrows, cairn stone circles, oblong cists appear to be therefore of local development owing to the impact of the megalith-builders, on the earlier people. At this stage, it has not been possible to find out definitely if the passage chamber tomb tradition itself was spread here from elsewhere or developed in the region. Irrespective of the indecisive stage of the problem of the origin of the tradition, the passage chamber tombs and the other tombs developed from them seem most probably to represent the earliest phase of the South Indian megalithic culture and heralded megalithic tradition in Karnataka in particular. Hence is the title: The Early Chamber Tombs of South India : A Study of the Iron Age Megalithic Monuments in North Karnataka, though it includes reasonably the study of the other unchambered megalithic types.

A word about the descriptive terms. The fundamental architectural form of the various known types of the megaliths found in large numbers in many sites, usually designated as dolmen, dolmenoid cist, etc., is the chamber. This term has been found to be very convenient for use in my study. For, the passage chamber is occasionally found to be either partly or fully buried in or raised from above the ground in most of the sites. They cannot therefore be brought strictly under any particular category such as dolmenoid cist or cist etc. On the other hand, of the two or three types of port-holed chambers, those of one type are invariably buried partly in the ground ; of the other type, upto the edge and those of another, raised from above the ground. They therefore can be classified accordingly as dolmenoid cists or cists or dolmens. Wherever these terms can appropriately be applied they are used and in other cases the term 'chamber' with brief abbreviation indicating its distinctive feature, is used as, *e.g.*, passage circular chamber etc.

North Karnataka

Definition of the Area and Historical Importance

North Karnataka lies between Lat : 14° 20°-17° 30' N and Long : 74° 30'-77° 30' E. It comprises eight districts : Bellary, Bidar, Belgaum, Bijapur, Dharwar, North Kanara, Gulbarga and Raichur and is about 79,150 sq km in area. It is surrounded by the state of Goa on the west, Maharashtra on the north-west and north, Andhra Pradesh on the east and the remaining part of Karnataka on the south. From the southern tip of Goa to the southern end of Dist. South Kanara, there is a coast line of about 125 km with important ports : Karwar, Ankola, Honnavar and Bhatkal respectively situated on the estuaries of the major rivers of the coast, the Kali, the Gangavati and the Sharavati opening into the Arabian Sea.

Belgaum, Bijapur, Dharwar and North Kanara had previously formed the southern part of the former Bombay State and Bidar, Raichur and Gulbarga, of the earstwhile Hyderabad State. The two areas are therefore popularly known as 'Bombay Karnatak' and 'Hyderabad Karnatak' respectively. Historically and culturally, this region had witnessed the rise, growth and fall of the great empires of the powerful

Badami Chalukya, the Rashtrakuta, the Kalyana Chalukya, the Vijanagara dynasties who exercised their suzerainty over a vast area often extending from Narmada to Kaveri or the Deccan and South India for centuries and vigorously patronised religion, literature and art. Consequently, the region posseses immense wealth of art and architectural remains of distinct style and types at Aihole, Badami, Pattadakal, Malkhed, Kalyana, Hampi etc. Thus it is too well known for repetition it has a glorious past and is one of the important parts of the sub-continent, that had played throughout a great and distinctive role in the cultural development of the country.

Physiography

The region is richly complex in its topography as it has chains of hills of different kinds of rock-materials and varying rainfall. Hills and valleys of each type of the rocks have their own characteristic appearances that determine the personality of the respective areas. Geologically, the Indo-Pakistan sub-continent is divided into three parts : the Peninsular shield ; the Indo-Gangetic plains and the Himalayan belt. North Karnataka is a part of the peninsular shield. The region is essentially composed of the bands of Dharwar rocks surrounded by hills of peninsular gneissic complex in the south, of the Deccan trap in the north and of the sedimentary rocks of two consecutive ages, the Kaladgi and the Bhima series in the middle.

The Dharwar rocks are associated with epidioritic and dioritic dykes in the area of Yadgir, Dist. Gulbarga ; trappeans overlying the Kaladgi sereis in the west-north-western parts of Dist. Raichur ; post-Bhima series, Vindhyan dykes and infra-trappean rocks underlying the Deccan trap in the areas of Shakapur, have been traced.

Besides, fine grained siliceous rock materials such as chert and jasper, agate and chalcedony etc., occur profusely in the limestone deposits of the Kaladgi and the Bhima series and in the Deccan trap respectively.

The Dharwar rocks are very rich in iron and gold. The present Hattig old mines of the Maski band and the Hospet region with the rich percentage of iron ore of high grade, are respectively striking instances for the mineral potentialities in this region. Similarly, the laterites of the coastal plains are found to be very rich in iron and manganese, according to the recent explorations by the Deptt. of Mines and Geology Government of Karnataka (1960-61 ; unpublished report) and other institutions (Itigatti, C.V. ; 1964 : pp. 56-63).

The areas of the Dharwar are generally at higher elevations and with smooth undulating plains broken up by ranges of hills usually with gradual slopes, rather picturesque and wild forests in the west and ruggedly plain with scrubs in the east and form deep valleys.

The peninsular gneissic areas are low lying rolling plains marked with chains of bold reliefs of rugged ridges and isolated knobs, while the hills in the west have thick cover of soil and forest, those in the east are severally plain, bouldery and with rock-shelters, caves and castellated terraces.

The sedimentary rocky areas are more or less flat and are run over by long chains of plain hills with extensive flat tops, rarely terraced and forming deep valleys.

The Deccan trap area is open, with low billowy hills, gently rounded, mostly bare of trees and shallow narrow valleys. The hills are surrounded by vast stretches of plain fields of black cotton soil.

Along the south-western part of Dist. Belgaum and the eastern part of Dist. North Kanara, runs the Sahyadri belt (the Western Ghat complex). The upghat of the belt and the strip fringing it, are relieved into hills, ridges and narrow deep valleys covered with dense evergreen forest almost impenetrable. The rock exposures are scarce, as the hills are mostly covered with thick soil and vegetation.

There are five big rivers with their respective tributaries and rivulets, together covering the entire region excluding Dist. North Kanara. They are the Bhima in the north ; the Krishna, the Ghataprabha and Malaprabha in the middle and the Tungabhadra in the south, the first and the third to fifth being the biggest tributaries to the second. In Dist. North Kanara alone, are three rivers ; the Kali, the Gangavati and the Sharavati.

Climate and Rainfall

Geographically, the region is divided, from west to east, into three parts : the coastal plains, the Malnad and the Maidan. The climate and rainfall vary extremely in these parts.

The coastal plains spread eastwards from the Arabian Sea towards the Ghats to a width ranging from 35 to 50 km rarely exceeding in height from 90 m to 120 m from the sea level. Here is the heaviest rainfall varying from 300 to 400 cm continuously from June to September, as the plains are directly exposed to the South-West monsoon.

The Malnad extending from south-western part of Dist. Belgaum to the southern tips of Dists. Karwar and Dharwar covering their eastern and western parts respectively, is mountainous and clad in a thick wild forest. Here also the rainfall is heavy varying from 100 cm to 200 cm and very rapidly decreases eastwards.

The Maidan forming the major portion of the region, is undulating, open country with a rainfall of rarely 60 cm to 100 cm but usually 40 cm to 60 cm. There is hardly any forest here, only scrap vegetation and few trees.

The climate on the whole is pleasant but extremely cold in the rainy season in the Malnad and coastal areas and extremely hot in the summer in the Maidan area.

Now agriculture is the main economic occupation of the region. Arecanut, cardamom, rice and ragi are grown in the coastal and Malnad areas ; maize, wheat, cotton, groundnut and tobacco, in the Maidan area.

Environment and the Development of the Prehistoric Culture

These rocks and soils were found to be the most suitable for their living by the prehistoric people, in this region. The quartzitic sandstone of the Kaladgi series for heavy tools such as hand-axes, cleavers, ovates etc., the fine grained siliceous rock materials for small sized stone tools, with sharp edges like scarpers, points, and for microliths, were extensively and enormously exploited by the pre- and pre- to-historic people of this region. Similarly, the laminated granite gneiss splitting into slabs of any required size by a simple technique of litting fire along the natural subtle cleavages,

the horizontal beddings of the sedimentary rocks yielding readily abundant supply of already detached sheets owing to exfoliation, the field boulders of both the granite-gneiss and the Deccan trap and the easily quarriable laterite provide excellant building materials. The megalith builders had largely used these stones for the construction of different types of megaliths.

The rich mineral resources, particularly the gold and iron, that could very well sustain even a primitive prospecting smelting, perhaps did not remain unexploited especially by the Iron Age megalith-builders. Nevertheless direct evidences to this effect, are yet to be obtained in this region.

A number of gold-mining (Allchin, F.R. ; 1962 : pp. 194-211) and iron smelting (Munn, L ; 1921 : pp. 1-11) sites have been noticed previously and some more by me. The antiquity of some of these may go back to the Neolithic and Megalithic periods, according to some writers (Munn, L ; 1921 : Allchin, F.R. ; 1962).

In brief, therefore, the profusion of suitable rock materials, the rich minera resources the benevolent river systems and the fertile soils favourable to the needs and promotion of the primitive ideas of the prehistoric people and particularly the megalith builders, account for the occurence of very large number of pre-and proto-historic and megalithic sites.

Further, the orientations of both the hills and the river systems were most encouraging for the movements and mutual contacts of the prehistoric people from one region to the other. The Bhima and the Tungabhadra proved to be the highways connecting the Godavari and the Kaveri valleys respectively. The granite-gneiss zone of the region is only a part of the most extensive peninsular gneissic complex found almost throughout in the adjacent States of Andhra Pradesh, Tamilnadu aud Kerala, all replete with megalithic sites. The Kaladgi extends north-westwards from Belgaum into the Arabian Sea near Malvan, a sea port, via Dists. Kolhapur and Ratnagiri. The Deccan trap extends all over the Deccan including the west coast upto the Narmada and beyond in the north and in Kolhapur and Ratnagiri in the south and skirts the granitic gneiss of the eastern Deccan. A knowledge of the extensions of these rock formations, outside the region of study, is useful to understand the affinities and relationships of the megalithic types of this and the adjoining regions, a comprehensive study of which would ultimately disclose the pattern of distributions and tracks of the dispersal of the different traditions of the megalithic burials.

PART II

EXPLORATION AND STUDY OF THE MEGALITHIC TYPES IN EACH OF THE FIVE DISTINCT ENVIRONMENTAL ZONES IN NORTH KARNATAKA

2

THE MEGALITHS IN THE ZONE OF KALADGI AND THE BHIMA SERIES

Environment

The sedimentary rocks unconformably overlying the granite-gneiss and consisting of sandstones, limestones, quartzites, quartzitic sandstones, conglomerates are found in two different series designated as the Kaladgi series and the Bhima series. The two series belong to two different geological epochs, corresponding to the Kurnool and the Cuddapahs of the Vindhyan and occupy two different areas of the region. The two series are thus unconnected geographically and in time.

The Kaladgi series, sub-divided into the lower and upper series, covers the middle and south-eastern parts of Dist. Belgaum from the Ghataprabha valley southwards ; the southern part of Dist. Bijapur ; the middle western part of Dist. Raichur and the northern strip of Dist. Dharwar. It occupies an area of about 190 km. x 100 km. from Saundatti (Dist. Belgaum) in the south, to Mamdapur (Dist. Bijapur) in the north and from Daddi (westernmost village in Dist. Belgaum) in the west, to Hanamasagar (Dist. Raichur) in the east. Long chains of hills of the series forming extensive valleys and with deep gorges, usually run in the east-west directions and in the western parts, in the north-south way. They are either horizontally bedded as at Gokak or columnar due to weathering as in Badami or with pitching folds as near Bagalkot. They are sometimes terraced and with flat extensive tops having thin red sandy soil cover bearing scattered scrubs or scanty vegetation, and with steep or slopy sides. They are generally exp sed and the rock surface is either massive, but frequentily split into thick roughly rectangular slabs of various sizes, or split into small irregular rubbles.

There are numerous outliers of this series resting on the older rocks of granite-gneiss which are occasionally exposed and inliers overlain by the Deccan trap which in turn is capped by the laterite. They are frequently exposed here and there on account of weathering of younger rocks in parts overlying them.

Some iron-bearing localities are found in the series (Campbell, J.M. : 1884 : p. 18). About fifteen old iron smelting sites, have been found in the zone by me. It is noteworthy that two bands of the Dharwars with auriferrous quartz reefs, are extended in this area.

There are two types of soil in this zone : the black cotton soil and the brown sandy soil. The area of the zone is drained rivers : the Krishna and her tributaries ; the Ghataprabha ; the Hiranyakeshi, the Markandeya and the Malaprabha. The Krishna valley is exceedingly fertile.

From Hattargi to Aihole are thirty four megalithic sites with many hundreds of tombs built with sandstone slabs conveniently, abundantly and readily available from the nearby exposures. Unlike the granite-gneiss slabs which are to be procured after some process of litting fire on the point of cleavage etc., in the sandstone exposures, just an application of a lever into the cleavages would yield slabs ready for construction.

Megaliths in the Zone of the Kaladgi Series

In the area of the Kaladgi series previously, only ten localities with megalithic remains were known. They are Konnur, Manoli, Terdal, Halingali, Hanagandi, Madalmatti and Asangi, Pattadakal and Guledgudda and Aihole. The megalithic type at Konnur was found to be a passage chamber known only from this site and not reported from any other site. From Hanagandi and other villages nearby, only one type was briefly described as having a chamber with "four passages at the cardinal points, all leading to the menhir at the centre (ARKRDK ; 1953-57 : pp. 44-45). It was not known whether the port-holed dolmen found at Aihole and Pattadakal, and "dolmenoid cists" (Joshi, R.V. ; 1955 : p. 23) from Manoli, were similar to those of Brahmagiri or represented a different type. Excepting a sporadic digging by an European of a megalith at Konnur (Burgess, J. : 1874) yielding fragments of human bones and pottery, none of them was examined to know their architectural features and contents, chronology and their relationship to the other known types. Also, the geographical extent of each of these various types, was not defined as there were only a few sites for flung from one another.

In the course of my study of these sites and further explorations in this area I discovered megalithic sites in twenty four localities. Out of these new sites, sixteen to the west and east of Konnur, have mainly the megaliths of the type found at Konnur. The site at Saundatti is similar to that of Sindhogi, and, broadly, of Konnur. At Aihole besides the known port-holed dolmens, passage chamber tombs were also found in continuous stretch from the known, in the revenue limits of the adjacent villages : Kyaddigeri and Chilapur. his is only site so far known in India where the typical port-holed dolmens and the passage chamber tombs (without port-hole) exist side by side. The site at Akkaragal, though much destroyed, however, gave some data to study the type represented by the only one dolmen of granite-gneiss at Pattadakal.

Thus, the area is rich not only in the sites but also in certain interesting and remarkable types deserving further thorough study. These sites are situated along or

near the banks of the rivers : the Krishna, the Malaprabha and largely the Ghataprabha almost from the points where these rivers begin to flow in the basin of the Kaladgi series. Commanding the view of these rivers or their tributaries the sites are situated either in what were once stony waste lands or on the hills and their slopes. The site at Konnur is, however, in the plain fields now completely under cultivation excepting the spots occupied by the stubborn megalithic remains. Some other sites are also being converted into arable lands.

The megaliths everywhere are in various states of hopeless dilapidation. There is scarcely any specimen intact in every respect in any of these sites. Only the various remnants of the different parts of many megaliths, when properly pieced together, would give a correct and full knowledge of the architecture.

Generally, they are from 50 to 100 or more in many localities or, sometimes, from 500 to 1000 or more spread continuously in about four or five adjacent localities. For instance, the megaliths in groups continuously exist in about seven localities from Hunur to Savargi. Similarly are the sites from Terdal to Asangi and in Aihole, Kyaddigeri and Chilapur. Each locality, therefore, does not possess always a separate site. Considering from this point of view, there are only thirteen sites. Further, although most of the sites have some essentially common types, they exhibit here and there some striking variations in certain architectural features. Morophologically, therefore, the sites can be classified into five main groups as under :

I. The Konnur group.
II. The Saundatti group.
III. The Terdal group.
IV. The Aihole group.
V. The Kaladgi group.

These groups are, one by one, studied below in detail for a correct understanding of their variations.

1. The Konnur Group

This group includes twenty one localities (1 to 21, in the list given at the end) having megalithic remains, situated along the banks of the Ghataprabha and her two tributaries, the Hiranyakeshi and the Markandeya, spread roughly in east-west direction from Ainapur and Harali (Bk.) and (Kd.) in Gadhinglaj, Dist. Kolhapur to (Honnina) Mavanur in Tk. Gokak, Dist. Belgaum, covering a distance of about 115 km. as the crow flies. These sites comprise in all about 700 to 1000 megaliths. A statistical table giving the location of the sites, the tomb-types etc. in each of the localities is given below.

Megalithic Tomb-Types

1. *Passage chamber* : In this group, the most common type is a chamber rather trapezoidal on plan with a passage invariably on the south. It is usually raised from above the ground and occasionally partly buried or almost completely buried depending upon the nature of the spot selected for the erection of the chamber.

The chamber (Pl. I ; 3) normally consists of six undressed, thick and huge slabs five on the sides as orthostats and one on the top as capstone. The western, northern

and eastern orthostats are each monolithic; the southern side has two orthostats, each of lesser width, erected so as to leave a gap in the middle of the side. The lateral ends of the rear (*i.e.*, northern) orthostat would, almost invariably, never stretch out across the edges of the side orthostats, but rest firmly against them. On the other hand, the front (*i. e.*, southern) slabs partially outlie across the front ends of the side orthostats. The capstone is the biggest and projects laterally on all sides across the top edges of the orthostats. Occasionally, there may be a rectangular pillar in the centre of the chamber to support the capstone.

The central opening in the southern side is approached by a passage formed by two flanking slabs set up vertically. The passage is normally lesser in height than the chamber proper. (Pl. I; 3,5.). It is also covered on the top with one or more capstones (Pl. I ; 4) that usually underlie the capstone of the chamber, at the point of contact (Pl. I; 4). The front end of the passage is closed across with a rectangular slab without port-hole. The passage is oriented invariably southwards, or somewhere between south-west and south-east.

The entire structure is surrounded by stone rubbles and earth heaped upto the capstone as a result of which the whole structure now becomes a round barrow (Pl. I, 2). The capstones appear as if lying simply flush with the cairn. Originally, it appears even the capstones in some cases were concealed in the barrow.

Sometimes, the chamber is rectangular on plan.

The mode of construction of the passage chamber is elaborated here for a comparative study of the plans of the various tomb-types. It is noteworthy here that the erection of the orthostats is neither clockwise nor contra-clockwise.

The cairn packing of the passage chamber is surrounded by a rectangle (Pl. II ; 1, 2). Still, rarely there may be a circle also, mostly concealed in the cairn, in between the passage chamber and the bounding rectangle (Pl. III ; 1). Or, only a circle may enclose the cairn packing (Pl. II ; 3, 4).

From the statistical table of the megaliths in each of the localities, given below, it is apparent that in the sites from Hunur eastwards rectangles enclosing the cairn packing, sometimes with an intermediary circle, are frequent and in the Godchinmalki, become more or less a regular feature. Besides, in the latter area, only circles, single or double, are considerably frequently, constructed to hold the cairn, instead of rectangle. This architectural feature is noteworthy as either of these architectural devices to hold the cairn packing is invariably found in every megalith of the extensive site at Terdal and nearby localities.

Sometimes two or three such round barrows unbound by rectangle or circle in a row, are so close to each other that the edges of the cairns coalesce at the point of contact. Consequently, they apparently look like a long barrow. There are about four such examples in Hattargi. Here it is not clearly evident if they were originally long barrows containing more than one chamber and not formed by the independent round barrows erected close to each other at different times. The shallow depression on the top and the receding edges of the cairn packings, at the zone of contact of the two barrows, would not occur in the case of long barrows. Perhaps such closely situ-

ated megaliths might have led in caurse of time to erect long barrows containing several chambers.

In Hidakal, Nirvanhatti and Nadigudiketar, rarely is a pillar found in the centre of the chamber to support the capstone.

Generally, the tombs are moderate in dimensions in the sites west of Hunur. On average, a passage chamber measures internally 80 cm. to 1 m l (along the N-axis); 80 cm to 90 cm and 65 cm to 75 cm b. at the rear and the front (along the E-W axis) respectivly and 60 cm to 80 cm h. The central opening formed by the two orthostats on the south is 15 cm to 20 cm wide. The passage is about 60 cm to 1 m l and 25 cm to 30 cm b internally. The cairn packing is about 6 m to 9 m in dia and 40 cm to 80 cm h. at the centre.

Rarely a chamber may attain large size as 1.80 m. x 1.55 m internally in area, in Hattargi area.

In the sites from Hunur eastwards, passage chambers of slightly large sizes are rather common. Generally, here the passage chamber tomb measures about 0.80 cm (N-S) x 1.0 m and 0.90 m (E-W) at the rear and the front respectively, 0.70 m. h. the passage being 1 m. to 1.20 m 1.25 cm to 40 cm b. at the rear and 40 cm to 50 cm b. at the front. The enclosing cairn would be about 7 cm to 9 cm in dia and 60 cm to 70 cm h. But in each site, very few, here and there, are nearly double the normal size, as well as very small. At Nirvanhatti, is a passage chamber 1.50 m and 1.25 m (N-S) b. at the rear and the front respectively and 1.05 m (E-W) l. Its passage is 2.55 m and 80 cm and the enclosing cairn, 11 m in dia and 60 cm h. Another, the biggest in the site, is internally 2.80 m and 2.70 m (N-S) l. at the rear and the front respectively and 1.70 m (E-W) b; the passage being 2.80 m l, and 0.60 m. The front end is closed across with a monolithic slab without port-hole. The orthostat on each side, too, is monolithic. Its capstone and the cairn packing of 13 m in dia are disturbed. One of the smallest from Hunur is about 60 x 55 cm internally.

Among the extant capstones, the biggest is 2.50 m l; 2.0 m w. and 0.25 cm. t. The missing capstone of the biggest tomb mentioned above, must have been the largest. Another capstone is 45 cm t. In Ghodageri, the biggest tomb is 2.20 m and 1.70 m (E-W) l. at the rear and the front respectively and 1.30 m (N-S) m. l. and 0.90 cm. the passage being 3.05 m. l. The surrounding cairn is disturbed. The capstone broken lengthwise, is 3 m. l. and 30 cm. Similarly, the orthostats on the sides and the rear are 3.50 m, 3.10 m and 1.70 m the height being 90 cm from the surface. A passage chamber at Konnur has still longer passage (Pl. III; 2). It is 3.18 m l. and 50 cm to 60 cm b. Sometimes, a big chamber has a short passage. In Gumachinmaradi, while the passage chamber, now used as manure pit, is 2.60 m l. and 2.20 m b, its passage is disproportionately small, measuring only 85 cm 1. and 65 cm b. It can not be ascertained from the state of its existence if the passage is only a remnant of the still longer passage originally the chamber had. But another example from Urbanhatti is clear in this regard. Its chamber is 2.10 m x 2 m; but its passage is only 60 cm. l. and 45 cm b.

It is particularly noteworthy that out of about 25 chamber tombs in Ghodageri, 15 are more or less large in dimensions.

It is usual that the capstone would be the biggest in a megalith. But, rarely, one of the orthostats may be unusually very big. The western orthostat of a passage chamber at Godchinmalki, is 2.60 m 1 and 35 cm t. Similarly, the enclosing cairn of a passage chamber 1.20 m x 1.05 m, the passage being 1.40 m 1 and 30 cm b which would be about 7 m in dia. ordinarily, is unduly 13.50 m in dia. in Nirvanhatti.

Long Barrows

A cairn rectangle containing one passage chamber tomb would generally be squarish and roughly measure 10 m x 9 m and those having many tombs ranging from two to four, are elongated and therefore become "long barrows" measuring from about 15 m x 8 m to 35 m x 15 m. Whether long barrows are also bound by rectangle, is not evident. In some instances it is seen that the stone rubbles of the cairn packing overflow so much on the sides of the bounding rectangles, if there be, that the former completely conceal the latter.

The long barrows are usually east-west oriented while the tombs in them invariably south oriented and equidistantly spaced. There seems to be a tendency to follow a definite proportion in between the length and the breadth of a long barrow ; usually the breadth is half the length of the barrow irrespective of the number of tombs it contains.

Of the two barrows at Hunur, the bigger one containing two and the smaller one three, are 28.50 m l (E-W) l x 12 m (N-S) b and 20 m (E-W) l x 11 m (N-S) b. The space between the tombs in the former is 9 m and that in the latter is 3.50 m each. The one at Hidakal is 15 m (E-W) l x 9 m (N-S) b ; another with four tombs at Nirvanhatti, 33 m (E-W) l x 9 m (N-S) b. In Badkundri, there is a long barrow containing as many as seven tombs.

The long barows are four in number, at Ghodageri (Pl. I ; 1) two of them being imposing. The small one has two passage chambers. Another containing four tombs, is 34 m (E-W) lx 15m (N-S) b x 1 m. The biggest one (Pl. I ; l) in this region is 50 m (N-S) l, 20m l (E-W) b and about 2.50 m. One peculiarity about this barrow is that unlike the other barrows, it is north-south oriented, but the tombs, exposed at the extremeties owing to previous disturbanes to it, are south-oriented parallel to the longitudinal axis of the barrow. One of the passage chambers exposed and disturbed, is surrounded by a circle the stones of which are well cut and have slightly convex dressed exteriors. The circle too was originally completely concealed in the cairn, in as much as practically the workmanship displayed in the fine dressing up of the exteriors is superfluous. In Savalgi there are four such long barrows.

Certain Peculiar Minor Features of Some Passage Chambers

In Godchinmalki a passage chamber has the passage at the south-eastern corner of the southern side instead of at the centre (Pl. VI ; l). Another with the passage, similarly, at the south-eastern side, has a small chamber adjacent to the passage with the south side being open.

In Hattargi, a passage chamber is peculiarly hexagonal on plan. The passage chamber of a long barrow in Hunur has an incomplete semi-circular facade to the front of the passage, indicated by the three juxtaposed upright stone slabs. Whether

this was due to deliberate attempt on the part of the builder is not clear. This inconspicuous feature may remind the concave facade of the horned cairns of Western Europe (Glyn Daniel ; 1963 : Fig. 8, p. 63).

The passage chamber with pillar at the centre has two concentric rectangles enclosing the cairn packing, in Nadigudiketar.

The boundnig rectangle invariably consists of only one course. However, the rectangle of a megalith at Godchinmalki is a dry low wall of three courses.

The flanking sides of the passage of another chamber tomb, is made up of roughly cut rectangular blocks. The orthostats of another chamber tomb, instead of being monolithic on each side consist of several slabs placed flat one on the other and thus the construction is 'cyclopean', a method repeated in some megaliths of Terdal group, to be described below.

In Nirvanhatti, there is a double cairn stone circle measuring externally 8.80 m and 4.40 m. The inner circle of the latter is formed by well cut and dressed laterite rectangular blocks while the outer one is of roughly dressed sandstone blocks. Abutting the northern arc of the outer circle from outside are two adjacent semi-circles of 1.50 m in dia. each enclosing a small passage chamber. What kind of tomb, if any, is enclosed in the main circle cannot be known as there are no surface indications.

2. *Small square chambers* : There is another type of megaliths found occasionally in very small number along with the passage chamber tombs, in some of the sites : Hattargi, Hunur, Badkundri, Hidakal (Pl. VI ; 2) Nirvanhatti and Ghodageri, etc., perhaps meant for child burial.

It is a small square chamber of about 50 cm. square internally, formed by four slabs as orthostats and almost completely buried in the surrounding cairn. The orthostats at the corners may either touch each other or project laterally across the end of the others. There is no device, passage or port-hole for entrance into the interior. In Godchinmalki a tomb of this type was found to bear a capstone partially displaced (Pl. VI ; 4). The cairn packing is generally not bound by either a circle or a rectangle.

Generally, tombs of this type are not found independently, but exist as part of the passage chamber tomb complex. They may be found beside a passage chamber and within the rectangle bounding the cairn packing or in a semi-circle abutting externally a big cairn rectangle or in a long barrow, near one of the passage chambers. Occasionally in single cairn there may be, at times, two or three, or, as many as five, tombs of the type in question each being independent of the other. Multiple tombs in a single cairn packing are in an intelligible arrangement. In the case of two, they are set either apart or adjacent to each other ; three are arranged in a triangular way on the cardinal points as found at Konnur, an instance of which is found in Dadamarahatti, also near Hattargi. A cairn packing in Nirvanhatti encloses one at the centre surrounded by a small circle and four on the cardinal points outside the circle.

3. *Round barrows* . In Nirvanhatti there are about twelve round barrows unbound by rectangle or stone circle, ranging from 6 m to 9 m in dia. and from 40 cm to 90 cm many being disturbed and a few apparently undisturbed.

4. *Cairan stone circles* : In Nirvanahatti is an imperfect cairn stone circle

measuring externally 10 m in dia. and 60 cm h at the centre. Similar stone circles are found in Nadigudiketar, Honnia Mavanur and Urbanhatti ; but not more than two or three in any of these in Ainapur, there are six partially disturbed stone circles.

With regard to the types of 3 and 4 there are no indications to know if they contain any tomb and what type of tomb, if there be any, they contain. Hence their classification as different from the types 1 or 2 is provisionally and subject to revision from excavations.

Raw Materials and Dressing

Raw materials : The passage chambers and the small rectangular chambers are invariably constructed with sandstone slabs available readily in convenient forms from the nearby exposures. Also, generally, the rectangle enclosing the cairn packing, consists roughly of dressed rectangular blocks. Occasionally, sandstone blocks are used for the circle also. On the other hand, cairn packing whether it be of passage chamber or of any other type, is made up of quartzitic sandstone rubbles, Deccan trap pebbles and sometimes river worn quartz pebbles as at Ghodageri, in odd proportions. In addition to these, there is yet another material that is added to the cairn of many of the passage chambers at Chodageri, Nirvanhatti : fragments of white quartz or pegmatite that is not readily available everywhere. There may be some significance in including not easily accessible stone in the cairn of only the passage chambers. This feature is repeated in many of the sites.

At Hunur four conglomerate square blocks, were found near a passage chamber, although use of this stone in the construction of any megaliths of the group, was not encountered by me in these sites. But well cut blocks of this stone are used in a passage chamber in Kaladgi which is about 50 km east of this group. Probably this stone might have been employed but rarely. Laterite is generally preferred for circles as it can be easily dressed for making perfect circle, and rarely for rectangle.

Thus six varieties of stones—sandstone, Deccan trap, pegmatite or white quartz, river worn quartz pebbles, conglomerate and laterite—available locally were used for various parts of the megaliths.

Dressing : None of the orthostats of the megaliths of the above types, show signs of surface dressing or straightening of the edges, for the simple reason that naturally split rectangular slabs of convenient size and form that needed further little dressing for the intended purpose, were abundantly available. Only pillars wherever required, were cut into required size by just hammering along the line of natural cleavage.

Blocks of the rectangles enclosing the cairn packing have clear marks of rough dressing on the exterior only and of straightening of the edges. In the case of the circles, there is a careful attempt of dressing the exteriors of the blocks into almost even surface and making them slightly convex, out of necessity in order to get a perfect circle. Laterite and conglomerate wherever used had to be dressed to the requirements. The neatly cut perfect rectangular blocks of these stones, suggest the same.

Megalithic Tomb-Types of the Konnur Group : Their Frequencies

A= Passage chamber enclosed in cairn packing probably bound by a rectangle or a circle at the edge that is not visible owing to the overflow of the cairn.

B = The enclosing cairn packing of the passage chamber, bound by rectangle.
C = The cairn packing, bound by circle.
D = The cairn packing, bound by a circle and a rectangle.
E = Long barrows enclosing passage chambers.
F = Small square chambers.
G = Small square chambers enclosed in cairn rectangle.
H = Small square chambers enclosed in cairn circle.
I = Round barrows.
J = Cairn stone circles (probably the chamber within is destroyed).

Note : The above symbols are used in respect of the megaliths of the above types, of Saundatti and Aihole groups, described below.

TABLE

No.	*Locality*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*
1.	Ainapur	30	2	3	—	—	—	—	—	—	—
2.	Harali (Bk) & (Kd)	42	5	2	—	—	—	—	—	—	—
3.	Hattargi	50	—	—	—	—	—	—	—	—	—
4.	Dadmarhatti	37	—	—	—	—	—	—	—	—	—
5.	Jinral	70	—	—	—	3	—	—	—	—	—
6.	Badakundri	23	—	—	—	4	—	—	—	—	—
7.	Hunur	13	—	1	1	2	3	—	1	—	—
8.	Nirvanhatti	72	17	1	3	8	—	—	—	—	—
9.	Nadigudiketar	11	2	1	—	2	—	—	—	—	—
10.	Hidakal	27	3	—	—	3	—	—	—	—	—
11.	Sultanpur	35	—	—	—	1	—	—	—	—	—
12.	Ghodageri	28	3	—	—	5	—	—	—	—	—
13.	Savalgi	50	—	—	—	4	—	—	—	—	—
14.	Konnur	78	7	2	—	—	9	—	—	—	—
15.	Godchinmalki	11	11	8	2	—	—	1	—	—	—
16. 17.	Sigiholi, Urbanhatti	6	—	4	2	—	—	—	—	—	3
18.	Kadihalli	2	—	—	—	—	—	—	—	—	—
19.	Gumachi-Maradi	8	2	—	—	—	—	—	—	—	—
20.	Honin-Mavanur	6	9	2	—	—	—	—	—	—	—

Passage chambers = 724 approximately
Small rectangles = 12+1+1 = 14.
Round Barrow = 0.
Stone circles = 3.

Note : Recently, I noticed in Hosur in between Hidkal and Sultanpur, an already much destroyed site, about six disturbed passage chambers.

II. The Saundatti Group

There are three sites in this group : Sindhogi, Tallur and Saundatti. The site at Manoli reported by Joshi (1955 : p. 3) is actually within the revenue limits of Sindhogi which is on the right bank of the Malaprabha river opposite Manoli. Konnur is 40 km north-west of Tallur.

Chains of sandstone hills in south-east and north-west direction towards Gokak, Konnur etc., and in east-west direction towards Badami, with deep gorges of which the Peacock Gorge is well known, run in several ranges in Saundatti area. The rock surface here is highly quartzitic metamorphosed into boulders and rubbles. Occasionally, the rock in the ground level exposed near the banks of the river, is horizontally bedded and yields excellent slabs. These rock features are noteworthy as they did have some influence on the construction of the megaliths here.

One of the bands of the Dharwar rocks extends to the west of this area. These rocks near Sampgaon (Tk. Bailhongal, Dist. Belgaum) are found to be gold bearing. Near the Peacock Gorge and at many places within about 10 km to 15 km area iron bearing rocks are traced.[1] I noted two big ancient iron smelting sites in Tallur and Jalikatti nearby. The mound of the iron slags in Chennapur near Kittur which is about 40 km south-west of Saundatti, is the biggest measuring about 50 m l. x 10 m b. x 3 m.

The Malaprabha river passes through this area. The soil is generally dark red with patches of the black cotton soil here and there.

The Megalithic Sites

The site at Sindhogi is on the right bank of the Malaprabha river while that of Saundatti on the top of the Yellamma Gudda, commanding a spectacular view of the river passing through the Peacock Gorge at a distance. The site at Tallur is on the slopes and at the foot of a hill range. Besides, there is also a habitation site with largely early historical pottery including russet coated white painted pottery and sprinkling of megalithic pottery in the cultivated fields in between the megalithic site and the Tallu-Saundatti road. All the three localities are within a distance of 10 km to 15 km.

The Types of Megaliths

There are mainly two types of megaliths found in these sites :

1. Passage chambers surrounded by either two or a single circle or by a circle and a rectangle.
2. Round barrows.

The passage chamber is of the type found in the Konnur group. It is particularly noteworthy, that at Saundatti the megaliths though individually disturbed are not completely destroyed, in as much as it retains as many megaliths as it originally had. The sites of the other localities, however, have probably been reduced to their present extent owing to gradual reclamation of the lands for cultivation. For, about 300 m east of the present border of the site at Sindhogi, in the midst of the cultivated fields

1. Information kindly given by the Deptt. of Geology and Mines, Government of Karaatåka I am highly thankful to the authorities.

where there are not even the slightest traces of the surface indications of megaliths, a cultivator while digging, by chance, found a megalithic burial containing pottery and human bones. Later on, when I visited the site I, informed and guided by the cultivator, could collect a few megalithic black-and-red ware and red sherds from the spot. This instance, therefore, shows that the site was originally more extensive than what it is now.

As usual, there is no rigid segregation of the types in the sites in general. A megalith of one type may be found in between megaliths of the other type. However, in some areas megaliths of each type are concentrated in small numbers here and there.

1. Passage chamber tomb : The passage chamber tomb is similar in type to that of the Konnur group. But the plan of the chamber is generally rectangular, while that of Konnur is trapezoidal mostly. The cairn packing of the passage chamber is invariably held up by double circles or a circle and a rectangle (Pl. III ; 1).

If a megalith has more than one circle or rectangle, the passage usually terminating at the circle, may be extended upto the outermost circle or rectangle. And the rectangle may have a distinct gap marked by two blocks of stone in line with the passage.

At Sindhogi and Saundatti the chamber and its passage usually measure 2.50 m l x 1.50 m b x 0.75 m-1.00 m h and 1.20 m l x 30-40 cm b respectively and thus are comparable to those of the Konnur group. The exteriors of the stone blocks of the circles and rectangles are generally dressed.

Aberrant Type of the Passage Chamber

In Konnur group, the orthostat of the chamber, on each side is usually monolithic slab, but may be more than one while in Saundatti, generally field boulders two or three in number on each side form the orthostat (Pl. VI ; 3). In order to raise the height of the orthostat, in the latter site, in some cases the boulders are coursed as suggested by feeble and meagre evidences of such remains. Moreover, the front corners of the chamber (i.e. on the southern side) do not make right angles ; orthostats on the southern side make an obtuse angle with the side orthostats. Occasionally, the side orthostats of some chambers are slightly convex.

The central gap on the southern side that serves as entrance to the chamber, is approached by a short passage of the height equal to that of the chamber, that terminates at the bounding circle. There may occasionally be a gap in the circle exactly in alignment with the passage, a feature for the first time noticed here.

In the centre of a passage chamber at Saundatti there is a block of stone that seems to have functioned as a pillar. The chamber measures from 1.25 m l x 1.20 m b to 2.65 m l x 2.00 m b internally and 50 cm to 80 cm and the passage is from 45 cm to 50 cm l.

Out of eleven passage chamber tombs, only two have slabs as orthostats.

Thus these boulder passage chambers in their dimensions usually less in height and area than the slab passage chamber and in certain architectural features such as short passage, gap in the enclosing rectangle in line with the passage, seem to represent

an aberrant type of the passage chamber of the Konnur type.

2. *Round barrows* : It is significant that this type is represented in large numbers in the Saundatti group. As it looks on the surface, it is quite simple : a circular heap of stone and rubbles and earth about 5 m to 7 m rarely, 11 m in dia. and from 15 cm to 80 cm in hight at the centre. Generally, no circle or rectangle surrounds the cairn. At Saundatti, in one or two cases, there is a vague indication of the barrows having bounding circle.

One noteworthy feature is that there appears to be a tendency on the part of the builder usually to select whitish quartzitic rubbles for the cairn, as the barrow consists largely of rubbles though brownish red coloured stone rubbles are locally found in excessively enormous quantities. We have observed that the cairn of the passage chambers of the Konnur group does comprise white pegmatite fragments also. Thus there appears to be some significance in using the whitish quartz or pegmatite. Besides, river worn pebbles are also used for the cairn packing.

Many of them are apparently undisturbed. At Tallur, local reports about the disturbed say that at a low depth, a huge slab is generally found lying flat. Some depth below the slab, bones, pottery, iron objects, were found. From one of the disturbed barrows at Tallur, I picked up a few potsherds of the megalithic black-and-red ware and the red ware, small fragments of iron objects and bones. Earlier, from this disturbed burial were got conch shells (Pl. XXVII) which were handed over to the Desai of that village who fortunately preserved them and gave these to me during my visit to that locality.

Thus, from the low elevations (i.e., about 10 cm) of some of the barrows, from the absence of capstones lying flush with the cairn, etc., and from the local report about the occurrence of only one stone slab from the digging of a barrow it appears that these barrows are unchambered. They are pit burials of the type found in Gajendragad group, but sealed with heavy and large cairn packing.

TABLE

Megalithic tomb-types of the Saundatti group : their frequencies

No.	*Locality*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*
1.	Tallur.	—	—	—	—	—	—	—	—	6	—
2.	Sindhogi.	—	—	5	1	—	—	—	—	20	—
3.	Saundatti.	2	—	9	2	—	—	—	—	19	—

Note : 3*C*=These passage chambers are described above as aberrant type.

III. The Terdal Group

In this group there is a very extensive site with about 1000 megaliths or a little more, extending into the revenue limits of five localities : Terdal, Halingali, Hanagandi, Madanmatti and Asangi, (list of the sites, below), discovered by Annigeri (ARKRBK; 1941-46 : p. 23). These localities are situated within a distance of

about 8 km at the foot of an extensive sandstone hillock commanding the view of the vast plain fields of the fertile black cotton soil. The river Krishna runs eastwards at varying distances of 1 km to 5 km to the north of the hillock.

Within a distance of about 40 km east of these localities, the sandstone rocks are found to be richly iron-bearing, especially at Konnur and Bisnal (Tk. Bilgi, Dist. Bijapur). In the latter, I saw huge iron mining pits in the hill tops and a large iron smelting site near the locality.

The Megalithic Site

In the stony waste lands at the foot of the hillock, in the terraces and on the slopes are found megaliths in groups here and there in different states of ruin and concentrated in between Terdal, Hanagandi and Halingali (Fig. 21). The types of the megaliths are largely passage chambers that differ in plan from that of the Konnur and Saundatti groups. Secondly, pillars within the chambers, supporting the caps-tone, is a regular feature of the passage chambers. The megaliths of this site are, therefore, studied separately.

Types of Megaliths

There are three types of megaliths :

1. Passage chambers.
2. Small square chambers.
3. Cairn stone circles.

Again, according to the plans of the first type, they can be sub-divided into :

(i) Passage chambers of the Greek or Latin Cross type.
(ii) Passage circular chambers.
(iii) Passage chambers of the Konnur group type.

In this site also, there is some degree of segregation in the distribution pattern of the types. The passage chambers of the Greek or Latin cross type are in large numbers in the western and northern parts of the site respectively towards Terdal, Halingali and Hanagandi; the passage circular chambers, on the northern slopes of a valley in between Terdal and Hanagandi; the small rectangular chambers, on the slopes for some distance from the medieval fort to the west of Halingali and cairn stone circles, on the hills to the south of Halingali. The first sub-type appears to be a little more than the second in number while the last two sub-types, more or less equal in number, are represented by a few only. The megaliths of the first two types would account for about 90 per cent of the megaliths of the site.

It should also be noted that irrespective of the different types of the plans the passage of the chamber is invariably south-oriented.

(*i*) *The passage chambers of the Greek or Latin Cross type* : In this type, the chamber with the passage is like a Greek or Latin cross in plan, the chamber being approached by a passage usually long, invariably on the south (Pl. VIII; 3. Pl. IX ; 4, 5 and Fig. 9). Depending upon the length of the passage the principal axes of the chamber are either equal or the N-S axis is longer than the E-W. Accordingly, the passage chamber looks like a Greek cross or a Latin cross. Generally, the width of the passage is narrow. The passage is usually as high as the chamber, unlike that of

the passage chamber of the Konnur group. Owing to its peculiar plan, usually, there are nine orthostats on the eight sides of the chambers, the two being on the south with gap in the middle as entrance approached by a passage oriented somewhere between south-west and south-east.

On the top, each part of the chamber, i.e., the eastern, the northern and the western is covered with a capstone and in the centre there is another resting on the edges of the surrounding capstones. If the area of the chamber is larger, there will be more than one capstone covering each of the parts (Pl. VII ; 2 Fig. 3 ; 2).

The passage is also covered with more than one capstone placed across all along the length. It is closed across with a block of stone, having no port-hole, in the front.

The chamber is enclosed in the cairn packing upto the capstone (or, perhaps, concealing the capstones also, but instance to this effect is not found in the site). The cairn packing, in turn, is bound by a rectangle (Pl. X, Fig. 4; 2) and sometimes with a circle in between the chamber and the bounding rectangle (Fig. 4 ; 1). The passage of the chamber would terminate within the rectangle or at the inner side of the circle wherever present in between the chamber and the rectangle. If the area of the chamber is large there may be four pillars one each in the centre of each part of the chamber and one at the centre (Fig. 4 ; 1, 2) to support the capstone.

There is only one long barrow (Fig. 3 ; 1) measuring 24 m x 8 m enclosing three passage chambers of the Greek cross type spaced at equal distances, enclosed in the dry cairn packing, which, in turn, is bound by two rectangles.

There is a peculiar feature noticed in three of the rectangle-bound passage chambers : a semi-circle is attached to the southern side of the rectangle and it has a passage in the centre in aligment with that of the chamber (Fig. 4 ; 2).

The chamber is raised from above the ground. The method of the interlocking of the orthostats is the same as that of the Konnur group. However, usually orthostats touch each other at the corners and would not stretch out laterally across the other. Occasionally, the slabs are placed flat one upon the other to the required height to form the walls of the chamber and thus the construction is cyclopean. The passage chambers of the long barrow, and two others (Pl. XI ; Fig. 11) are cyclopean in construction.

Sometimes the rectangle enclosing the cairn packing of a passage chamber is raised in two or three to five courses (Pl. X ; 1, 2) depending upon the height of the passage chamber within.

The smallest passage chamber and the enclosing rectangle would measure 3 m 1 x 3 m b and about 1 m h and 6 m x 6 m, respectively ; while the biggest, 6.50 m (N-S) 1 x 5.50 m (E-W) b and about 2 m h and 12 m square, interiorly. The former is very common.

(*ii*) *Passage circular chamber* : In this type, the chamber is circular in plan and has a passage, invariably short, in the middle of the southern arc of the chamber, enclosed in a rectangle (Fig. 8 ; 2) or in double circles or in a circle and a rectangle (Fig. 8 ; 1) holding the cairn packing in between. Usually, the passage

terminates at the inner side of the immediately enclosing circle. Within the chamber there may be one or two or three or four pillars supporting a capstone. The chamber is further covered on the top by placing elongated capstones radially all round, on the central capstone and the top of the orthostats of the chamber, while the passage, as usual, is covered with as many capstones as required, placed across it and is closed at the front, with a slab without porthole.

The orthostats of the chamber, are so closely juxtaposad that no space is left in between them.

The chamber is usuaally 2 m in dia while the outermost rectangle or circle is about 6 m square or in dia. respectively.

(iii) Passage chamber of the Konnur group type : As described under the Konnur group above it is a chamber rectangular in plan with a short passage on the south, enclosed in a circle (Fig. 6) or a rectangle (Fig 5 ;1). But each side of the chamber consists of two or more orthostats unlike that of the passage chamber of the Konnur group.

There may be one or three pillars (Fig. 6 ; 1) within the chamber to support the capstones which are more than one.

The passage in the case of one small passage chamber is at the south-western corner and not in the middle of the southern side (Fig. 6 ; 3). On the southern exterior side of the circle enclosing a passage chamber is a rectangular court enclosing the cairn packing (Fig. 6 ; 1).

There is a disturbed megalith consisting of four pillars carrying a very prodigious capstone broken in the middle within a rectangular chamber (Fig. 5 ; 2). The orthostats are disturbed. But it is noteworthy in this as to how elongated capstones are placed radially on the orthostats and the central capstone.

This type occurs in small number, about 20 to the west of Halingali and a few in between Terdal and Halingali.

The chamber is usually 2 m 1 x 1 m b x 60 cm to 80 cm h ; the passage, 60 cm to 80 cm 1 x 40 cm to 50 cm b and the cnclosing rectangle, 5 m 1 x 4 m b interiorly.

2. *Small Square Chambers*

We have noticed that this type occurs in the Konnur group, described above.

In this site, it is a small square chamber without a passage or a port-hole, invariably enclosed in a circle (Fig. 7). Sometimes, two or three circles each enclosing a small chamber are adjacent to one another (Fig. 7 ; 2) or two or three semicircles are attached externally to a circle, each of them enclosing a small chamber (Fig. 7 ; 1).

In general, the chamber is 60 cm to 1 m square while the enclosing circle is from 2 m to 3 m in dia.

3. *Cairn Stone Circles*

In the flat surface of the hill to the south of Halingali are about 18 cairn stone circles. The type, as found in the other sites, is a stone circle containing the cairn packing of stone rubbles and (earth Pl. XIII : 1, 3 ; Fig. 12). There are no sur-

face indications in any of them that they contain burial chamber. They are of different sizes : the smallest is 2 m and the biggest 12 m in dia. Those of 4 m to 6 m in dia are common. The cairn packing is 30 to 60 cm in the centre.

The stones of the circle are either undressed, bouldery blocks or rectangular slabs slightly trimmed on the exterior in order to get perfect circle, placed flat one beside the other.

Raw Materials and Dressing

For the orthostats of the chamber tombs, the circles and the rectangles, sandstone slabs available in plenty at hand, are freely used. The cairn packing of all the megalithic types consists of sandstone rubbles mostly of whitish grey colour. But that of the passage chambers of the Greek or Latin cross type only includes fragments of pegmatite or white quartz like that of the passage chambers of the Konnur group. The intermediary circle in the cairn packing of only one passage chamber of the Latin cross type, has apparently the Deccan trap boulders of small size.

Usually, the exteriors of the rectangles are dressed sometimes roughly and sometimes rather finely, those of the circles, usually finely dressed and slightly curved to get convex form in order to obtain perfect circles.

The pillars are usually rectangular in section got by breaking rectangular slabs of high thickness, along the line of cleavage, in the middle. They are not further dressed.

The orthostats of the chambers of any types do not have any dressing, as they are available naturally in convenient forms.

IV. The Aihole Group

In this group are four localities : Aihole, Badami, Pattadakal and Guledgudda. About 100 km south-east of Terdal, as the crow flies, on the right and left banks of the river Malaprabha, are respectively Aihole and Pattadakal, the distance in between them being about 10 km. Badami, a taluk headquarters, is only about 15 km south-west of Pattadakal. These places are very well known for their Badami Chalukyan temples, rock-cut caves and inscriptions as well as for the megalithic burial remains (Burgess; 1874 : pp. 306-38. Cousens, H : 1926. pp. 128-129). Guledgudda is about 25 km north-east of Badami.

Taylor (1942 : p. 61) reported that there were in Guledgudda a cairn and three cromlechs or kistvaens of the smaller size 75 cm × 90 cm partly buried in the ground near a tank to the south of the village.

During my visit to Guledgudda, I found that the chamber tombs reported by Taylor were not there and there were six round barrows of the type found in the Saundatti group, described above. One of the disturbed cairns was found to have red ware vase and the black-and-red ware bowls and lids (Pl. XXVI; 3).

Nearly 100 years ago, Burgess had reported about the megaliths at Aihole and Konnur together, earnestly desired for a systematic study of these and made a brief comparative study. Later on, Cousens gave a small account of these.

The megaliths at Pattadakal, two in number near to each other near the foot of a hill in Bachangudda revenue limits, are beside the way to Pattadakal and are too

prominent to be missed even by a casual visitor.

In the course of my study of the megaliths at Aihole, I found that the site was much larger than what was till then known extending into the revenue limits of the adjacent villages, Kyaddigeri and Chilapur, in continuation from Aihole. The previously known megaliths are only port-hold chambers while those in Kyaddigeri were of passage chambers. Thus the presence of entirely two different traditions of the megalithic architecture in one place makes the site important.

In Pattadakal, too, I discovered a group of about 20 megaliths near the left bank of the river Malaprabha in the revenue limits of another village, Akkargal. But, unfortunately, they are severely destroyed. However, some idea about the types of monuments found in this locality, can be had.

Aihole and Pattadakal, are surrounded by chains of hills of the Kaladgi series with numerous outcrops of granite-gneiss in between. These hills overlook the plains below under cultivation and the river Malaprabha. It is interesting to note there that slabs of both sandstone and granite-gneiss, have been used for the megaliths. In Aihole, there are execellent exposures of the sandstones with fine slabs of various sizes already loosened from the rock, that can be, at once, conveniently useful for megalithic tomb constructions. In Pattadakal, besides sandstone slabs, the granite—gneiss outcrops, when quarried, yield slabs of enormous size and thickness.

The Megalithic Sites

The megalithic site at Aihole is on a flat bare sandstone hillock in between the well known Jaina Meguti temple with Ravikirti's inscription (642 A.D.) and the rock cut Jaina cave temple. In fact, any visitor, while going from the Meguti temple to the Jaina cave, will have to pass through the group of these megaliths. Here are found port-holed dolmens, about 40 in number. There are also three round barrows, which are not mentioned in the earlier report.

From about 50 m south-east of the Jaina cave towards another village Kyaddigeri about 1.50 km south-east of Aihole in the cultivated fields and on the slopes of the low ridges of rock of the revenue survey numbers 10 to 50 etc, and also in the revenue limits of the village Chilapur which is only a few metres from Kyaddigeri are about sixty megaliths of mainly two types: passage chambers and cairn stone circles. These perhaps remained unnoticed before I spotted them. Any visitor after reaching the Jaina cave would trace back his steps towards Meguti temple and there is apparently nothing to attract the visitor further beyond. And there is no mention of megaliths of the types in these areas in the published works.

In Pattadakal, about 1.50 km south of and to the left of Badami Pattadakal road, are the two megaliths, a port-holed chamber of granite-gneiss and probably a passage chamber of the sandstone architecturally almost intact.

About 5 km north-east of these megaliths, in a valley of sandstone hill range, at the foot of a huge granite-gneiss outcrop, locally called Shankar Gund, near the left bank of the river Malaprabha, is the group of megaliths noticed by me. All are of granite-gneiss, the slabs of which are evidently quarried from the nearby hill. Unfortunately, every one of them is in utter ruins. From the available remains, they appear

to be of the port-holed chamber type. The field in which these megaliths are found is under cultivation and in the revenue limits of Akkargal.

Types of Megaliths

As usual, the megaliths in the above sites are erected close to one another and are now in various stages of destruction. There are chiefly three types :

1. Passage chambers.
2. Chambers with or without port-hole.
3. Stone-circles.
4. Round barrows.

There is clear and distinct segregation of the types. The port-holed chambers are found in between the Jaina rock-cut cave and the Meguti temple; the passage chambers, a little away from the other side of the Jaina cave in the cultivated fields and on another low hillock towards Kyaddigeri; and the stone circles on the nearby sand stone ridges. Generally, each type does not occur in the other two areas. This pattern of distribution appears to be significant and deserves to be borne in mind while studying.

1. *Passage chambers*

These are mostly in the revenue limits of Kyaddigeri.

Some metres south-east and east of the Jaina cave from the foot of the hillock, in the cultivated fields and on another low hillock near Kyaddigeri are scattered these tombs about 35 in number in an area of about 10 to 15 acres.

In plan, elevation and method of construction, the passage chambers are similar to those of Sindhogi of the Saundatti group. The chamber almost completely concealed in the rubble packing, is rectangular on plan. The approximately south-oriented passage is, in many of them, short. The enclosing cairn wherever undisturbed, is bound by either a rectangle or a circle but rarely by both (Pl. II; 4). But there is some slight variation on the southern side of the chamber noticeable in many of the megaliths. In the passage chamber of the Konnur group, the two orthostats on the southern side abutting the side orthostats, leave a central gap forming the entrance into the chamber from the passage. But in this site in some passage chambers here are no orthostats on the southern side. On the other hand, the rear ends of the flanking slabs of the passage, close as much possible the southern side (Fig. 16; 3.) from the side orthostats.

As noticed in the sites of the Konnur group, in this site also one of the chamber tombs has its passage at the corner instead of in the centre. Another disturbed chamber is divided into two parts by a transverse slab.

Though, usually, the sides of the chamber consist of monoliths, in one case each side is formed by two or three blocks similar to that of Saundatti.

The chamber is, on an average, from 1.10 m $\times$ 1.20 m to 2.50 m square; the passage, from 60 cm to 1 m l and the enclosing circle or rectangle is from 6 m to 8 m in dia and from 3 m x 3.30 m to 5.50 m x 6 m respectively. Exceptionally, the passage of one chamber is of 2 m l.

There are no very large passage chambers.

The exteriors of the blocks of stones of the circle or rectangle are roughly dressed.

The rock-material of the chamber tombs is entirely the local sandstone. But the cairn may include particularly white quartz and/or pegmatite fragments, a feature already noticed in Konnur and Saundatti groups.

In Pattadakal, there is a big chamber tomb that, as obvious from the architectural features, originally had a passage which is now missing. It measures interiorly 2 m ×1.20 m and 1.10 m h from the ground level. But the top, which is usually covered with monolithic slab in the other megaliths, is here covered with four slabs juxtaposed across the chamber. It is noteworthy that this passage chamber tomb only is of local sandstone, while the other megalith of the port-holed chamber tomb type, close by, is of pinkish granite gneiss.

Small square chambers : In Kyaddigeri there is only one small square chamber concealed upto the top in the enclosing cairn (Fig. 16; 2). We have noticed that this type is rather frequent in the Konnur group.

2. *Chambers with or without Port-hole*

These are found, as already mentioned above, on the outcrop between the Jaina rock cut cave and the Jaina temple called Meguti. They are about 45 to 50 in number all in utterly hopeless ruins. In some of them are plants or white ant hills. Five of them have each a port-hole in one of the orthostats, the port-holed orthostat being either fallen or in the original position. In most of them at least one of their orthostats is missing while any of the other extant orthostats is without port-hole. Four other chambers, though robbed of their contents, retain all their orthostats intact though slightly displaced in two cases. But there is no port-hole to any of these. None of them in the entire group, has the slightest indication that they had originally a passage.

The port-holed chambers are scattered over the area of about 10 to 12 acres of the flat rock. Sometimes three or four are situated close to each other. As the interiors are visible owing to their disturbed conditions, it is found that very many of them are raised on the bare rock surface while the others, on a thin soil cover overlying the rock. They, therefore, may be discribed as dolmens.

The chamber is formed by four orthostats on the sides and the capstone on the top is roughly rectangular (Pl. XIV; 3). In so far as the method of interlocking the orthostats is concerned, there is no variation from what has been observed in the case of the passage chamber tombs. The side orthostats usually project laterally at both the ends across the ends of the front and the rear ones. Or, one of the front and rear orthostats may do so at one end. In one of the orthostats, preferably facing east or south there may be a port-hole (Pl. XIV; 2). Two of them have port-holes looking east; the port-hole of the third faces south. There is no passage leading to the port-hole.

The chamber, as obvious from a few, has externally, a thin wall of rubble packing (Pl XIV ; 1) which in turn is enclosed by slabs in vertical positions inclining slightly inwards that rest at the top against the capstone. There is no circle or a

rectangle enclosing the cairn packing of any of them. But there is one rectangle of two courses 13 m (N-S) l x 9 m to 11 m (E-W) b and 60 cm to 80 cm and contain at least three chambers. The eastern and southern sides recede at right angles at one point. On the eastern side roughly in the middle, is apparently a flight of two steps. Within this rectangles, nearer the south-eastern edge, is a chamber (1.95 m x 0.92 m internally), the north-eastern orthostat of which is missing. To the east-south east of this nearby are five slabs in vertical positions of a dilapidated chamber. Similarly, there are vague traces suggesting perhaps the existence of another chamber near the flight of steps. Surrounding this chamber is the cairn packing. There are depressions in the cairn packing here and there owing to disturbances. Anyway, that thi rectangle enclosed more than one chamber is clear.

The port-holed chamber at Pattadakal is well preserved by the Archaeological Survey of India. But the chambers at Akkargal are badly destroyed (Pl. XV).

The one at Pattadakal is a rectangular chamber formed by four large and thick orthostats on the sides, bearing a still larger capstone at the top (Pl. XV ; 1, 2). The side orthostats, at both the ends, project laterally across the edges of the front and rear orthostats. The front orthostat facing south-south east has in the middle bottom a rectangular opening larger than what usually a port-hole would be. In the front side, in continuation of the western orthostat. is seen only the broken edge of another orthostat. Also, three other huge slabs are found fallen, one lying flat on the other two, in front of the chamber. The fallen slabs and the broken orthostat evidently suggest that they formed another compartment of the extant one which was obviously north-south oriented. The present front slab with the rectangular opening is, therefore, segmental orthostat dividing the chamber into two compartments.

Remnants of the cairn packing of stone rubbles and earth enclosing the chamber, are extant on the northern side. There is also a vague indication of the chamber being surrounded by a circle the stones of which appear to have been disturbed.

The chambers at Akkargal, as they are situated in the plain fields, are partly buried and, therefore, may be described as dolmenoid cists (Pl. XV ; 3).

The ground plan, as obvious from the remnants of a few megaliths, is similar to that of the extant compartment of the port-holed chamber described above at Pattadakal. A chamber on an average measures from 1.10 m x 1.25 m to 2.10 m x 2.15 m. But rarely a side orthostat is too long to be of a single chamber. A side orthostat of a completely destroyed chamber is exceptionally 4.85 m l and 40 m to 45 m. The width of the chamber is probably 2.90 m. The chamber, in view of its length, perhaps had two compartments like the one at Pattadakal.

There is neither port-hole nor passage in any of the visible parts of the chambers.

Measurements of some chambers indicate a tendency to make the east-west axis slightly longer than the north-south axis. But wherever the chamber consists of two compartments, naturally the north-south axis is longer.

Usually, each side of the chamber consists of a single orthostat; but occasionally more than one.

Port-holed dolmenoid cist with passage : There is only one port-holed dolmenoid cist (Fig. 16 ; 4. Pl. XVIII) in this area of the site, at Aihole to the chamber, rectangular on plan but neither clockwise nor contra-clockwise, is partly buried in the ground. There is a U-shaped port-hole in the centre of the north-eastern orthostat approached by a short passage of low height. In between the passage and the port-hole is a rectangular slab partly broken covering originally the port-hole. There is a disturbed cairn packing surrounding the chamber and no trace of a circle or a rectangle enclosing the cairn packing.

3. *Stone Circles*

In Aihole, Chilapur and Kyaddigeri there are in all 16 cairn stone circles but disturbed in the first two localities. Those in Kyaddigeri are mostly, apparently, undisturbed and consist of two or three and sometimes four concentric circles.

Single stone circles in all these places are from 1.90 m to 4.75 m externally in dia ; a double stone circle would be, generally, 4 m and 7 m and a treble circle measures 2.50 m ; 4 m ; 5 m ; and 7 m in dia.

Within the circles is the packing of stone rubbles giving low hemi-spherical elevation varying from 20 cm to 40 cm h at the centre.

Of them two are stone circles : double and treble (Fig. 16 ; 1) surrounded together by an elongated circle constricted in the middle in the north-south direction, a peculiar feature noticed in this site only. If some stones from the constricted part are removed, the enclosure broken in the middle would form an independent circle to each of the inner cairn stone circles. In fact, they look like treble circle and quadruple circle.

Further, there is another noteworthy feature in this megalith. The innermost circle of the treble circle in the northern part of the enclosure, has a south-oriented short passage, terminating at the inner side of the next circle. It recalls vaguely the passage circular chamber of Terdal.

4. *Barrows*

There are seven round barrows, all disturbed, close to one another near the chambers with or without port-hole on the rocky outcrop and nearer the Jaina rock-cut cave, at Aihole. They are from 7 m to 10 m in dia and about 15 cm to 25 cm h at the centre. The middle portions of these, have depressions suggesting disturbances to them. Similarly, in Guledgudda are five or six round barrows still extant, of about 4 m to 6 m in dia and 30 cm to 50 cm h. Three of them are disturbed. On the surface of one of them, which is reduced almost to the ground level, are scattered fragments of pottery. It was examined and found to contain two lids of the black-and-red ware, tulip shaped bowl, small red ware vases etc. (Pl. XXVI ; 3) which will be described below. There are no indications in it that there are chambers concealed in the cairn.

A Hexagonal Tank in Aihole

It is incidentally noteworthy that in the middle of the site there is roughly a circular tank of 20 m in dia and 1.50 m deep in the rock caused evidently by quarrying stone slabs, with a megalith in the stone fencing on the peripihery of the

tank (Fig. 15). The fencing consists of undressed rough slabs in vertical positions so that on plan they form a haxagon. The sides measure from 15 m to 18 m. On the eastern side there are no slabs but is a flight of steps resulted from quarrying. On each side some slabs here and there are missing ; some in slanting positions and some fallen. On an average, a slab measures from 1 m to 1.50 m h 60 m to 80 m wide and 20 m to 25 cm thick. On either side of the enclosure, there are stone rubbles in low heaps. Within the enclosures are grown thorny scrub vegetation. Now opposite the flight of steps at the corner formed by the east-west south-east north-west sides is a dilapidated megalith. The existence of the chamber along the enclosure is interesting. It is likely that the enclosure might have come into being after the erection of the chamber since the latter is not within the former but forms part of it. At the same time the use of rough stones for the enclosure appears to suggest contemporaneity with the megaliths.

A Stone Anthropomorphic Figure

Near the tank, on the scattered rubbles is lying flat a stone cut object (Pl. XIV ; 4) looking like a symbolic anthropomorphic figure with convex top, constricted concave neck, bevelled projected boulders elongated body and bluntly pointed bottom. The edges are roughly dressed suggesting its connection with the megalith builders. It was originally fixed vertical in the found and a cult object. It recalls similar "cruciform monoliths" noticed by King William (1877 : pp. 179-185) near the megalithic stone circles in Mungapet (Palunch Tk.) on the road in Hanamakonda

TABLE

Megalithic Tomb-Types : of the Aihole Group : their Freequencies

No.	*Locality.*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*A1*	*A2.*
1.	Aihole Kyaddigeri Chilapur.	—	13	1	—	—	—	—	—	3	21	1	39
2.	Pattadakal.	1	—	—	—	—	—	—	—	—	—	—	1
3.	Akkargal.	—	—	—	—	—	—	—	—	—	—	—	20

A1 : Port-holed dolmenoid cist.

A2 : Chambers with or without port-hole.

Rock Materials and Dressing

In Konnur, Saundatti and Terdal groups, there is no evidence of regular quarrying of stone slabs for megalthis, as the required materials are abundantly available in suitable forms. But here, in addition to the picking up of suitable slabs of sandstone readily found in the exposures, is found regular quarrying of slabs in the granite-gneiss for the obvious reason that they are not readily got. The slabs thus obtained are not roughly trimmed, at the edges. The orthostats in this group are comparatively very thick like that of the passage chambers of the sandstone. The trimming of the edges which is shallow flanking (Pl. XV; 1) is different from that of Hire Benkal that has rather deep percussions.

V. The Kaladgi Group

The megalithic tombs of the site in Kaladgi (Sundara, A ; 1970 : pp. 216-226) have certain noteworthy peculiarities not found in the groups of the passage chambers described above. There are two other sites, Hallur and Rajawala, chamber tombs of which are typologically similar to those of this site, but situated in the zone of the Dharwar rocks. Hence, they will be dealt with separately under the sites of the zone of the Dharwar rocks.

Kaladgi, situated on the left bank of river Ghataprabha, formely a disttrict headquarters of the same name in the 19th century A. D., is now an ordinary town in Tk. Bagalkot, Dist. Bijapur, about 35 km west of Bagalkot. This is the place where for the first time the basin of a series of sedimentary rocks comprising sandstones, quartzitic sandstone, quartzites, limestones, conglomerates, etc., was recognised and is, therefore, named after the place, *i.e.*, the Kaladgi series. Excepting a hill about 2 km nrth-east of the locality, there are no prominent hills as such in the round about area. Small eminences of rocks are found on the eastern side. But for these, the locality is a plain land of sandy reddish brown soil, sometimes grey with patches of black cotton soil.

The hill on the north-east side, about 35 m in the north-west-south-east direction, is highly quartzitic on the surface with ridges of boulders on the top ; laterite covering on the sides and conglomerates mostly in the bed of the river flowing beside the western edge of the hill. About 2 km east of this hill are some hillocks with laterite capping the upper part of which is highly disintegrated into roughly rectangular boulders of different sizes, already detached from the mother core. The river Ghataprabha, flowing south-eastwards from a distance, suddenly takes a steep curve on the north side of the locality and begins to run north-eastwards past the hill.

The hill is locally called Saifuddin Guḍḍa, named so after a Muslim saint whose tomb is in a modern pillared pavilion with a stone wall enclosure which also contains a tomb nearby on the hill.

In a report on the geology of this area a hill of this locality is strangely enough called Cromlech Hill.[1] Excepting this name, no reference to megalithic tombs or site, is given. I thought the name so given by the geologist, was perhaps due to the presence of some megaliths which would be the distinctive feature of the hill for easy identification. But, on enquiry I am given to understand by some geologists that no hill here is now called Cromlech Hill. Nevertheless, I took the old refernece as a clue, explored the locality and noticed a megalithic site just by the side of the Saifuddin Daragah on the hill (Fig. 13).

The site commands a panoramic view of the river, the surrounding plain fields under cultivation and the town. On the southern fringe of the hill are thickly scattered iron slags.

In the site are found about 43 megaliths of mostly the passage chamber tomb of the type not known hitherto from any of the reported sites in the Deccan and South India.

1. *Gazetteer of the Bombay Presidency*, Bijapur Dist. Vol. XXIII, 1884, p. 32.

The passage chambers, locally known as Jalāl Bhavāgaḷa Duni (fire-hearths of Muslim recluses), are scattered in an area of about eight to ten acres. Like other sites this site is also disturbed. However, the structural part of most of them is less disturbed and on the whole gives a complete idea of the type of the tomb architecture.

Types of Megaliths

Mainly, there is only one type : the passage chamber. Besides, there are five stone circles apparently without chambers in the interiors.

The Passage Chamber

In general the chamber is irregular hexagonal on plan formed by five orthostats with a short but less conspicuous passage much lower in height than the chamber, and surrounded by a circle sometimes as high as the chamber within. The passage opens into a port-hole formed in the lower part of the circle : a feature peculiar to the tombs of this site. None of the chambers bears at present a capstone.

The chamber usually consists of a monolithic orthostat at the rear and two on each side. The sides slightly converge towards the front by making an angle at the junction of the two uprights, so as to form the narrow entrance opening in front. From this entrance opening proceeds the short passage into the port-hole of the circle (Pl. XII; 1. Fig. 14 ; 4).

Sometimes, the space in between the entrance opening and the port-hole of the circle, is too small for a passage (Pl. XII ; 4. Fig. 14 ; 6). And in this case the passage is apparently absent.

The enclosing circle more or less maintains a normal size of about 3.50 m dia externally and consists usually of 13 to 15 stones which is also a noteworthy feature. The stones of the circle are arranged so as to leave a small gap in front of the passage. The top corners of the stone block flanking the gap are cut off so as to fit in there another stone block to cover the gap on the top (and also perhaps the passage). Sometimes even from the bottom of the gap left is narrowed and the gap becomes an opening *i.e.* a port-hole leading to the passage. This is entirely a novel feature present in the tombs of the site only.

The space left in between the circle and the chamber is generally very small ; stone rubbles are thinly spread in between the chamber and the circle. But there is no cairn packing, on all the sides, to the main chamber. How the chamber was originally concealed, cannot be known from the present state of its existence. Only, there is a sprinkling of stone rubbles in and around the chamber and the circle.

The orientations of these passage chambers, unlike that of the passage chambers of Konnur and of the other groups described above, are remarkably varied. Broadly speaking, some are looking west ; some, north-west and north; and some, south south-west, and very few, east and between north-east and south-east. This is another singular feature of the passage chambers here. The majority of them are oriented between west and north and those oriented between south-southeast and south, are next in number. A table of the orientations of all the megaliths (excepting of the stone circles), is given below.

Occasionally, some minor variants in this type occur. For instance, a chamber

may be longitudinally divided into two compartments by just inserting another orthostat in the middle parallel to the sides (Fig. 14 ; 3).

Sometimes, the sides of a chamber are straight without a bend, but converge towards the front to form the narrow entrance. In this case the chamber looks elongated tapering towards the front (Pl. XII ; 4). Or, in front, two stones with a gap in between are placed like horns abutting the flanking stones of the port-hole, to form a concave facade (XII ; 2. Fig. 14 ;5). Or the chamber may be circular on plan. Infrequently, there may be two or more concentric circles or a circle and a rectangle enclosing the chamber (Fig. 14 ; 1). The outer most circle or rectangle may have a passage in alignment with that of the chamber (Fig. 14 ; 1). In one case it was noticed that the passage in the enclosing rectangle was near the corner instead of in the middle and was out of alignment (Fig. 14 ; 2). And this rectangle had a semi-circle in the middle on the outside.

Generally, the chamber interiorly measures from about 0.75 m and 40 cm b at the back and the front respectively by 2 m 1 ; to 1.10 m and 35 cm b at the back and the front respectively by 1.20 m 1 ; or 1.70 m and 75 cm b at the back and the front respectively by 2.20 m.

The height varies from 50 cm to 75 cm. The passage generally measures from 40 cm to 60 cm l and from 33 cm to 45 cm b and about 10 cm h. The immediately enclosing circle is from 2.20 m to 4.80 m externally in dia, the dia between 3.30 m to 3.70 m being the most common and about 10 cm to 30 cm h. The port-hole in the circle is about 33 cm w and 40 cm h. The two outer concentric circles of the passage chamber would measure about 5.20 m and 8.20 m in dia. The outermost rectangle wherever present is from 9 m to 11 m w and roughly square.

The interlocking of the orthostat is simple : usually the orthostats meet at the hind corners. They do not extend laterally across each other's extremeties. Thus the plan is neither clock-wise nor contra-clockwise. The stones of the circles are closely juxtaposed. And the rectangle usually consists of two rows of field boulders with stone rubbles in between and usually 1 m w.

Stone Circles

As mentioned above, there are, in all, 5 stone circles without chambers in the interiors. In two of them it is doubtful if they were indeed without chambers. It is quite likely that the passage chambers in them might have been destroyed in course of time. One of them has an opening in the circle looking W 290° N and a small block of stone within. The rest are most probably without chambers.

One of the circles is oval shaped, measuring externally 4.10 m (N-S) by 4.80 m (E-W) in dia. Another is a conjoint circle one being smaller than the other measuring 2.10 m and 2.60 m externally in dia respectively. There is another double (concentric) circle of 1.60 m and 2.55 m in dia.

Raw Materials and Dressing

All kinds of the local stones, *i.e.* laterite, quartzite or quartzitic sandstone, limesone, conglomerate, have been well exploited for building the megaliths. Among them laterite is in fact the most common as it is freely and readily available in plenty and

gnerally in suitable forms. The next one is quartzitic sandstone or quartzite. Even though the megaliths are situated on the top of the hill of the latter, it is considerably less used as it occurs in boulder forms and not in slabs convenient for the construction of the chambers. There are about twelve megaliths completely of laterite and many others have partly, especially for circles, the same stone. Quartzitic sandstone boulders are used only for the circles and rectangles and never for the chambers. Infrequently, laterite and quartzite are together found, of course the former being predominant, in one circle. Limestone slabs, greyish black in colour are occasionally used for the chamber only as they are found in slabs of irregular thicknesses and forms and in much less quantity on the surface. Conglomerate boulders are confined only to the circles of a few megalihts.

Laterite of course occurs in rectangular blocks of various sizes. The stone used in the megaliths are, however, a little dressed so as to arrange them properly into the circle. The exterior usually is made slightly convex perceptible only to the keen eye. There is clear evidence of cutting nicely of the blocks wherever necessary. The cutting of the top corners of the two stones forming the opening in the circle to accommodate the capstone is a very good instance. Likewise, the conglomerate blocks of the circle are neatly cut into rectangular blocks which is comparatively difficult. There is no indication that the quartzitic sandstone boulders and limestone slabs have any dressing.

TABLE

Types of the megaliths in Kaladgi

No.	*Type of the megaliths*		*Approximate number*	*Remarks*
1.	Passage chambers enclosed in a circle.	...	11	The other megaliths are disturbed.
2.	Passage chambers enclosed in a circle and a rectangle.	...	5	
3.	Passage chambers enclosed in a double circle.	...	1	
4.	Stone circles.	...	6	

Orientations of the megaliths of the Kaladgi Group

(According to the passage of the chambers or the opening in the circles).

No.	*Orientations*	*Approximate Orientations*
1	2	3
1.	West	West
2.	,,	,,
3.	,,	,,

1	2	3
4.	West 280° North	West-North west
5.	West 295° North	,, ,,
6.	West 300° North	,, ,,
7.	North-west	North west
8.	,, ,,	,, ,,
9.	West 320° North	,, ,,
10.	West 330° North	,, ,,
11.	,,	,, ,,
12.	,,	,, ,,
13.	,,	,, ,,
14.	North	North
15.	,,	,,
16.	North 30° East	North-North east
17.	South-East	South-East
18.	East 150° Soth	South-South east
19.	East 160° South	,,
20.	,,	,,
21.	East 170° South	,,
22.	South	South
23.	South 190° West	South-south west
24.	South 200° West	South-South west
25.	South 210° West	South west
26.	South-West	,,
27.	,,	,,

3

MEGALITHS IN THE ZONE OF THE DHARWAR ROCKS

Environment

From the east to the west of the region, there are seven main bands of the Dharwar rocks, comprising variously schists, quartzites, ferruginous quartzites, fine grained limestones etc. They run roughly in north-north west and south-south east directions at irregular distances with granite-gneiss rocks in between, in the southern half of the region under study. One of them runs along the western part of Dist. Dharwar. The narrow southern part of the district is completely composed of the Dharwar rocks with occasional and obscure exposures of the granite-gneiss here and there. Another band, east of this, covers the eastern part of Dist. Bellary. There are many prominent hills of these rocks running in chains and forming valleys here and there.

But the nature of the Dharwar rocks is that normally it does not occur in extensive horizontal beddings like the granite-gneiss and the sedimentary rocks of the Kaladgi and the Bhima series. However, slabs of large size, on quarrying, may be available on a limited scale at certain places. The rock disintegrates into rubbles which are, therefore, in plenty. And the haematite quartzite usually running in ridges exposed in the top levels of the hills, yields huge blocks of irregular forms. But the exposures of such ridges are few.

These rocks are rich in iron and at some places traces of gold, for instance a Honnali about 10 km south of Hallur, in these rocks, have been detected.

At Nagvand an ancient iron smelting site was noticed.

This area is drained by the river Tungabhadra and her tributaries, the Kumadvati and the Varada. The soil is greyish clayey and brownish sandy with patches of the black cotton soil.

The Megalithic Sites

In all there are about 36 sites so far known in this area. Many of these sites were discovered by the Kannada Research Institute of the Karnatak University during

1930-40 (Annigeri, A. M.; 1958: p. 44); some, by the Archaeological Survey of India, in 1960-61 (Nagaraja Rao, M. S.; 1965 : pp. 154-64) and quite a few by me, in 1965-66.

Nagaraja Rao, (1964 : pp. 55-77 and 1965) had given a brief account of the antiquities from some of these sites. In Feb-March, 1965, the Kannada Research Institute of the Karnatak University, Dharwar and the Deccan College Post-Graduate and Research Institute, Poona, undertook vertical excavations of the habitation site at Hallur, on a small scale, under the direction of Nagaraja Rao. The site was found to have the remains of the Neolithic, the Iron Age and the early historical (Nagaraja Rao, M. S.; 1971).

I have examined 8 of the known sites and they are :

(i) Nagvand.
(ii) Hallihal.
(iii) Hallur.
(iv) Chatnalli (in which the Bhairavanpada site is situated)
(v) Kamalapur.
(vi) Sidenur.
(vii) Motebennur.
(viii) Budapanhalli.
(ix) Rajawala.

The first five are near to one another and within a distance of 10 km ; the next four, about 70 km further north and north-east.

Types of Megaliths

The types of megalithic burials in these localities are :

1. Round barrows.
2. Cairn stone circles.
3. Passage chambers.
4. Free standing chambers i. e. dolmens.

A statistical statement of the approximate number of megaliths of each type in the above localities is given below.

TABLE

No.	*Types*	*Round barrows*	*Certain stone circle*	*Chamber tombs*	*Dolmens*
	Localities				
1.	Nagvand	30	—	—	—
2.	Kamalapur	10	—	—	—
3.	Hallur	15	—	—	—
4.	Budapanhalli	30	—	—	—
5.	Chatñalli (Bhairavanapada)	—	30	18	—
6.	Hallihal	—	15	—	—
7.	Sidenur	7	13	—	—
8.	Motebennur	—	—	—	—
9.	Rajawala	—	—	3	—

From the above table, it is obvious that the round barrow and the cairn stone circle are the most common types in this part while chamber tombs are found in two sites only.

Simialrly, further east of the above localities in the western part of Dist. Bellary, near Neelgund[1] and Telgi (Subba Rao; 1949: p. 99) and to the north of Chikkuruvatti[2] round barrows and stone circles are reported to have been found. At Kadaramandalgi (Tk. Byadgi) and at Benkanhalli (Tk. Haveri) there is a dolmen each. From the environment point of view, the occurrence of the round barrows and the cairn stone circles and of the occasional presence of dolmens and passage chamber tombs, may be owing to the non-availability of suitable slabs in plenty and the abundance of stone rubbles.

Thus (uncircled) round barrow becomes very common. Wherever field boulders occur, such barrows are encircled leading to cairn stone circles.

Generally, they are situated at the foot of the hills or in the flat areas of small outcrops of low elevation, where the required stone is available in abundance and easily and near some deep valleys. Now, the lands bordering these sites are cultivated.

They are erected near to one another at irregular distances, sometimes in groups of 10 to 50 in different areas in a locality as, for instance, at Nagvand and Budapanhalli. In an area of about 2 acres about 30 to 40 megaliths may be found scattered irregularly.

Unfortunately, most of the megaliths are disturbed in every locality. Near some of the disturbed megaliths there are sprinklings of pottery and bones. However, some megaliths of the round barrow type in Nagvand, Kamalapur, Hallur, appear to be undisturbed and are worthy of excavations. With the extant remains, it is possible to obtain information about the architectural types of the megaliths.

1. *Round Barrows*

This is the predominant type in this part and the simplest form of the megalithic burials wherever found : Just a hemispherical heap of stone rubbles and earth, circular on plan, raised over the burial pit. Whether the burial pit contains a chamber can be known from excavations only.

Generally, it is from 4 m to 8 m in dia and about 20 cm to 50 cm h at the centre. Occasionally it attains large dimensions, about 9 m to 12 m in dia and about 1 m h. In Nagvand they are usually about 4 m or 5 m in dia and about 40 cm to 60 cm h while in the other sites barrows of a little larger size are more frequent. The barrows near Neelgund, are very big.

The disturbed megaliths do not have any indications that they contained originally cists or dolmenoid cists.

At Nagvand, from the two disturbed burials in an area locally called, Dyāvar Ere, some pottery including a few rimsherds could be collected. Many of them are of the red ware and black-and-red ware of megalithic fabric. But it is interesting to note that some sherds are entirely different in fabric and types from the usual megalithic

1. Information kindly given by Sri A.M. Annigeri. The author is thankful to him.
2. The author was informed by the local people of Hire-Kuruvatti regarding the occurence of the megaliths in Chik Kuruvatti.

pottery and apparently are more akin to the Neolithic grey ware pottery there.

2. *Cairn Stone Circles*

This type (that is most common in the Raichur Doab of the granite-gneiss area) occurs in some of the localities: Hallihal, Sidenur Byadgi, Udgatti etc. It may be noted here that as one proceeds northwards and eastwards from Hallur-Nagvand area where barrows occur largely, cairn stone circles increase in number though round barrows may also occur.

This type, very commonly found almost in every part of the region, consists of a low hemispherical heap of stone rubbles and earth and is surrounded at the edge by a circle of field granite-boulders of blocks of haematite quartzite.

At Hallihal, all the megaliths about 15 in number are cairn stone circles ranging from 7.30 m (internally) and 8.70 m (externally) to 8 m (internally) and 9 m (externally) in dia. They are, more or less, uniform in dimensions.

At the site locally called Bhairavanpad in Chatnalli, the cairn stone circles have either single circle or double circle. Normally, the single cairn circle is about 4 m to 5 m externally in dia and rarely 8 m or 9 m and the double cairn circle, 1.50 m (inner circle) and 3 m or 4 m (outer circle), externally. There are about 22 single cairn circles and about 10 double cairn circles. Some of them are boulder circles and the others, slab circles.

In Sidenur, the cairn stone circles have invariably single circles ranging in dia from 8 m to 10 m internally and 9 m to 11 m externally.

3. *Passage Chambers*

This type occurs, in only one site, i. e., Bhairavanpada in Chatanalli (Sundara; 1972 : pp. 1-8 with a plate and two figures).

It is earlier reported (ARKRBK; 1947-52: p. 22) that there were some dolmens out of 280 megaliths in this site, facing east, south and north.

There are, in all, now seventeen chamber tombs of which eleven are too badly disturbed, to know their type. The other six are the passage chambers of the Kaladgi group type described above. But there are a few noteworthy features about them and are given below.

None of the chamber tombs now retains a capstone. The passage chamber is squarish formed by five orthostats one each on the three sides, and two on the fourth side that leaves a gap in the middle for entrance into the chamber. This entrance is approached by a passage formed by two flanking slabs in upright positions. The passage is of a lower height than the chamber. The interlocking of the orthostats is neither clockwise nor contra-clockwise in plan.

The chamber is partially buried in the ground. The passage is mostly east-oriented and, a few south oriented. The passage chamber is invariably enclosed in a circle. In between the chamber and the circle, the cairn of stone rubbles and earth is less prominent as the chamber is only partially above from the ground.

The chamber would interiorly measure from about 1.30 m (E-W) x 1.00 m (N-S) to about 2.00 m square; the entrance from about 35 cm to 55 cm; the passage about 60 cm to 75 cm l and 30 m to 35 m b (internally) and the enclosing circle, from about

3 m to 4.50 m in dia. The height of the chamber from the ground level may vary from about 20 cm to 50 cm.

Of the six passage chambers, three look eastwards; one is oriented east-south-eastwards and the other south-eastwards. The sixth one and the one of the disturbed are south oriented.

Thus the passage chambers here are either east-oriented or south-oriented.

In one of them there is an opening of 60 cm w in the circle, just in front of the passage, recalling that of the Kaladgi group, described above.

There is a part of a double lined enclosure containing originally a megalith. It is 5.10 m l externally and 2.90 m internally on one side and 1.10 m wide externally.

In Kanvi Siddigeri (Annageri, A. M ; 1958 : p. 44) there are nine platforms. I did not examine them.

The Megalithic Site at Rajawala

Situated near the right bank of the river Tungabhadra, Rajawala is a small village about 12 km north-west of Huvina-Hadagali, a taluka head quarters in Dist. Bellary. Sometime before 1852, on the request made by Taylor (1941: p.63), Pelly got compiled a list of megalithic sites (pp. 86-87) in Dist. Bellary and the neighbouring areas. In the list, Rajawala (Rajahvalum of the list) is reported as having 33 chamber tombs with or without port-hole of which 31 had stone enclosures. They were locally known as Moriyar Mane.

It is not known if Taylor or Pelly or some one else in course of time actually visited this site. On the occasion of my giving a lecture on 'Archaeology : aims and methods' under the auspices of the Karnatak University at Hagari Bommanahalli, near Huvina-Hadagali on March 31, 1971, I searched in vain for this site. Again, in October, 1971 when I went to Nagenahalli and Huvina-Hadagali for copying inscriptions on behalf of the University, I once again tried to locate this site and was successful in doing so (Sundara : 1972 b).

The Megalithic Site

The site is a km west of the locality, on a low bouldery outcrop of haematite-quartz of Dharwar rocks near the deserted old site of Rajawala existing right on the bank of the river. The land here is relieved into similar low outcrops here and there and on the other side of the river are long hill ranges of Dharwar rocks known as Gadak band in the northwest-southeast direction with auriferrous quartz reefs and iron bearing haematite-quartz.

The area where the site exists, is locally known as Kemman Maradi. In the site, there are about 25 megaliths. A few of them, I was told by the people, were destroyed while that part of the area was converted recently into cultivable land.

The megaliths are near to one another, spread in an area of about 3-4 acres of the stony wasteland. All are invariably built with undressed, rude haematite-quartz boulders of irregular forms. Every one of them is plundered and in ruins.

The Megalithic Type

In this site is only one type : a rather oblong chamber with a short passage of very low height on one side, sometimes closely surrounded by a circle of double lines.

The chamber is divided breadth wise into two sub-compartments by a vertical boulder in the middle. In front of this dividing boulder is the passage in such a way that entrance is possible from the passage to either of the sub-compartments. The passage terminates at an opening made in the circle. The space between the chamber and the circle is narrow. There is a sprinkling of rubbles around the chamber, not indicating any distinct cairn packing. None of them bears capstone now (similar to Fig. 14; 3).

The passage is oriented to various directions : east, south, west, north, east-north east, south-south east and west-north west.

Generally, the chamber measures interiorly from 1.70 m x 1.50 m to 2.30 m x 1.0 m and about 60 cm to 90 cm in height; the passage is from 60 cm x 40 cm to 90 cm x 60 cm and the circle 4.30 m in dia.

The rear side is made of two orthostats and likewise is the front but with boulders of small length so that entrance could be provided in the middle to be approached by the passage. On the remaining each side there is only one boulder. Generally, at the corners, the lateral edges of the orthostats touch each other. Thus the plan is neither clockwise nor contra-clockwise.

No antiquities could be got from any of them. No other types of megaliths are in this site.

Dolmens

A dolmen each at Mote Bennur, Kadarmandalgi and Benakanhalli is reported. Of these the one in the first locality is the biggest known in Karnataka. It forms a type by itself.

In the western outskirs of the village, it stands on an eminence, locally known as Kalchavadi, and in ruined state.

It looks (Pl. XXIX.; 1) like an altar made of huge, rough, long oval sectioned boulders apparently of dolerite. There are three boulder orthostats on the western side and two on the east and carries a similar boulder as capstone on the top. The northern and the southern sides are open. The orthostats are dislocated resulting in gaps in between them. On the southern and northern sides are fallen similar boulders.

The rectangular area enclosed by the orthostats is 2.10 m. (N-S) x 3.40 m (E-W) and the dolmen is about 2.80 m h (internally).

Thus each side and the top of the dolmen, have more than two boulders and the area of the interior is unusually very large.

No megaliths are found nearby this dolmen and about 2 km away are cairn stone circles in the revenue limits of Byadgi.

In view of the peculiar use of huge boulders and unusual large dimensions and of the absence of any other dolmens or other megaliths nearby, it is doubtful if it is indeed a megalith sepulchral in function.

The other two dolmens are said to be small and disturbed.

Thus dolmens are too few, peculiar and ruined, to know their typology or their similarities with the other respective types.

Raw Material and Dressing

All the stones available locally are used for the construction of the megaliths. The stones of the cairn stone circles are varied. In Hallihal near the site is a dyke of dolerite withered into field boulders which are used for the circles comprising, usually, small rubbles of schist and white and brownish white quartz.

The boulders of the circles at Bhairavanpad, in Chatnalli, commonly haematite quartzite and occasionally either white quartz or shaly schist, obtained from the summit of the hill range beside the side, while the cairn is formed variously by the conglomerates, limestone schist and quartz. In the case of double circle, the inner may be of white quartz and the outer of haematite quartzite or schist. One of the orthostats of a passage chamber is haematite quartz and another of white quartz. Granite gneiss boulders are employed in the circles of the megaliths at Sidenur. Here, the cairn part of the megaliths are so disturbed that the circles appear as if without cairn from the beginning.

As noticed in many of the sites in the zone of the Kaladgi and the Bhima series, here also, the exterior of the stones of the circles are dressed and slightly curved into convex forms. The circles are perfect.

4

MEGALITHS IN THE ZONE OF THE BHIMA SERIES

Environment

The sedimentary rocks of the Bhima series unconformably overlying the granite-gneiss, consists of sandstones, shales, flaggy limestones, conglomerates etc. and are divided into three series : lower, middle and upper. The lower and middle series are found in the eastern and southern parts of the zone and the upper is in the north and the west.

The series covers the upper half of Tk. Muddebihal, Dist. Bijapur ; and parts of Tks. Shorapur, Shahapur, Gulbarga, Chittapur, Chincholi and Sedam, all in Dist. Gulbarga and is spread to the east of the Kaladgi series in the south-west and north-east direction. The area covered by this series is about 180 km and from 50 km to 100 km wide.

Like the hills of the Kaladgi series those of the Bhima series also run in ranges as outliers and inliers overlying the granite-gneiss and superimposed by the Deccan trap respectively. In the western part, the hills of the series are run in between innumerable granite-gneiss outcrops and in the north eastern part they are overlain thickly by the black cotton soil. The surface features of the hills are similar to those of the Kaladgi series.

The black cotton soil and the brownish sandy soil are the chief types. The Krishna and her tributaries, the Don, the Bhima etc. drain this part of the region.

The sandstones between Hagaratagi and Kadekalvadi are ferruginous, moderately rich in iron and low grade iron was produced here in olden days (Mahadevan, C ; 1941 : pp. 120-124). It may be noted that Maski band of the Dharwar rocks with auriferrous quartz runs north-south in the western parts of this sub-zone. Many old gold-working pits have beennoticed in this band (Mukherjee, S.K. ; 1941 : pp. 20-21, 47-51).

In the Bhima series, so far about twenty megalithic sites have been noticed. In these sites the tombs are built with flaggy sandstones, limestones, etc.

It is recalled here that the region south and east of the zone of the Bhima series is essentially of the granite-gneiss in which different types of megaliths, such as port-holed dolmens, port-holed dolmenoid cist-circles, pit-circles, stone alignments are found as at Hire-Benkal, Gorkal, Tawargeri, and Lingasugar, described below. West and south-west of the region is the zone of the Kaladgi series with different types of passage chambers. As it is evident from the antiquities obtained from the different types of megaliths, particularly pottery, some of the various architectural traditions were probably contemporaneous at some stage. If this is so, it would be quite interesting to note how these various traditions were reacting with each other in this contact zone of the Bhima series and the granite-gneiss.

The Megalithic Site

Taylor (1941 : pp. 1-31, 42-55 and 88-120) was the first to discover, to investigate and to give a faithful account of megalithic sites especially in the south-western part of Dist. Gulbarga and further north comprising the Tks. of Shorapur, Shahapur and Jewargi. Subsequently, the Departments of Archaeology (ARADH ; 1939-40 ; p. 44 ; 1940-41 ; p. 7 and Pls XII; a & b ; Pl. XIII a etc.) and Geology (JHGS ; 1941 ; pp. 156-161 & 1947 ; pp. 56-58. Mahadevan, C ; unpublished paper) of the former Hyderabad State added many more sites from these areas to the list of Taylor's discoveries. Recently, I discovered three sites in the eastern part of Dist. Bijapur comprising Tk. Muddebihal. Thus in all about fifty two sites (list of sites, below Nos. 96-109, 113-118, 128-144 and 201-2) are known, of which thirteen were actually studied on the spot by me.

The sites are found in different parts from the western end of the zone of the Bhima series in the Dist. Bijapur to the north-eastern end in Dist. Gulbarga, covering more or less the major area of the zone. They include all the typical examples of the known sites besides a few other types peculiar to the area.

According to the distribution pattern of the types, the sites are grouped as follows and each group is studied in detail.

I. Talikot group.
II. Hagaratgi group.
III. Rajankolur group.
IV. Jewargi group.

I. The Talikot Group

In this group are included five sites : Talikot, Maskanal, Kaldevanhalli, Salvadgi and Bandapanhalli.[1] All these localities are near one another and within a distance of 5 km to 10 km in between each two.

This group is about 50 km north-east of the Aihole group as the crow flies.

While the areas of the first three localities are almost plain with vast stretches of black cotton soil overlying the flaggy limestones etc, small eminences and shallow valleys having limestone exposures on the slopes, those of the other two are hilly. The hills of the limestones etc. and the Deccan trap here surround the granite-gneiss

1. Mentioned in the Topo-sheet 56 D/S. w. as Matakandevanhalli.

outcrops. The River Don and her small tributaries drain the area.

The megaliths in all the sites, as usual, are found near to one another. In an area of about 6 to 8 acres are about 50 megaliths on an average. Broadly, there are three main types : 1. passage chambers, 2. port-holed dolmenoid cists, and 3. cist-circles.

1. The Passage Chamber

In all the sites this type appears to be rather small in number. In constructional details, it is closely similar to that of the Konnur group described above but with two differences : the chamber is invariably rectangular on plan and no instance of a rectangle surrounding the cairn packing of the chamber is found. Most of the megaliths are so badly disturbed that not a single example of this type considerably intact is found.

It is only from the remnant of some megaliths it is evident that the passage chamber type is in this group. It could not be known whether it was surrounded by a circle.

2. Port-holed Dolmenoid Cist

This type is similar to the port-holed dolmenoid cist (Pl. XVIII. Fig. 16 : 4) of Aihole. But no tolerably good example could be noticed in the sites of this group. In Maskanal, at Mori Matti Ani, I noticed an example of this type with a long passage enclosed in a circle (IAR; 1960-61. Exploration in Dist. Bijapur, Karnataka). This type appears to be dominant in the site.

This passage invariably south oriented, usually cuts the enclosing circle and terminates at the outer edge (Pl. XIX; 1), a feature noteworthy here. For, normally the passage ends at the inner edge of the circle in the groups of Konnur, Soundatti, etc. But this recalls a similar feature of the passage chambers of the Kaladgi group described above.

On an average, the chamber interiorly measures 1 m to 1.50 m (N-S) and from about 80 cm to 90 cm to 1.20 m to 1.30 m (E-W) along the principal axis. From the present surface level it is usually from 50 cm to 70 cm h. The surrounding circle is from 5 m to 7 m in dia.

The front exteriors of the limestone slabs of the circle are slightly made convex and finely chiselled (Pl. XXX; 4). Consequently, the exterior edges of the circle form a perfect circle. But the orthostats do not have any dressing. At Salvadgi, where the hills of granite-gneiss and limestones etc. are found side by side, while the portholed dolmenoid cist is of the limestone, the enclosing circle of granite-gneiss bouders.

3. Cairn Stone Circles

These are usually from 5 m to 7 m in dia. and 15 cm to 20 cm h. They are found occasionally in between the megaliths of the two types described above. There are no surface indications if they contain any of the above two types of chambers. In Bandapanahalli, cairn stone circles ranging from 5 m to 7 m in dia. occur more than in other sites. Here, cairn of the many stone circles consists of pebbles of the black

trap, while the stone slabs of the circle is of either granite gneiss or limestone. Wherever limestone slabs are used for the circles, the side exteriors are well chiselled, and slightly curved into convex form, as a result of which the circles are perfect.

II. The Hagaratgi Group

Three sites, Hagaratgi, Kodekal and Diamanhal, constitute the Hagaratgi group.

The topography of the area of these sites situated in the Don river valley is more or less the same as that of the Talikot group.

The Megalithic Sites

Hagaratgi and Kodekal sites are situated near the banks of river Don. The site in Diamanhal is in a plain field with prominent hills of limestone etc. of the Bhima series nearby. Similarly, near Hagaratgi are eminences of the limestones and in Kodekal, outcrops of the granite-gneiss and of sandstones, limestones, of the Bhima series. In these hills of the Bhima series, slabs of sandstone and limestone in rectangular forms of various sizes cleft from the surface of the outcrops and loosely lying about, are enormously available. The quarries of the granite-gneiss indicate the supply of slabs of any required size.

The site at Hagaratgi, locally known as Honnikal Hola is about 3 km south of the village, near the left bank of the river and in a plain field surrounded by cultivated fields. According to Taylor (1941 : pp. 22-24; 88-90) there were about 46 megaliths : 26 chamber tombs and 20 cairn stone circles (Pl. V.). At the time of my visit I could find only seven chamber tombs covered with thorny bushes, trees, etc. and no cairn stone circles.

About 2.50 km north-east of Kodekal, to the left of Kodekal-Budihal cart track, is the site having about 40 megaliths : chamber tombs and round barrows, in a plain field, surrounded by cultivated fields. These are locally known as Buḍḍara Mane (House of dwarfs).

In Diamanhal, about a km north of it, is the site in a plain field locally known as Pujari Hola with a few completely disturbed megaliths : cairn stone circles, chamber tombs (probably with or without port-hole) and passage chamber tombs.

To the east of the locality, about a km away is reported the existence of an ash mound. The mound is said to have been almost completely destroyed.

Unfortunately, the extant chamber tombs are too ruined to know their types. Taylor (1941 : pp. 22-24) reported 23 from Hagaratgi and some (about 9 according to his illustration) near Belsettihal (probably the same as the one mentioned above in Diamanhal, as the distance between the two localities is less than a km). Similarly, one each from Kodekal and Diamanhal series represent an unmistakable passage chamber tomb type. Another from the latter appears to be of a different type. On the basis of these five specimens the types are described below.

1. *Passage Chambers*

This type is not reported by Taylor or others. There are only two specimens of this type : one from Kodekal; another from Diamanhal.

The one from Kodekal is a chamber measuring interiorly 1.90 m x 2.10 m with its orthostats on the west, north and south sides intact. The orthostats on the south and the capstone are missing. That it had a passage on the south is indicated by a small slab in the left flanking line of the original passage. The passage apparently was about 4 m l., the longest so far known in the groups of megaliths of the passage chamber type. The passage chamber is almost completely buried in a circular cairn packing of stone rubbles of about 11 m in dia and 40 m to 50 m.

The tomb is entirely of sandstone. This feature is noteworthy in view of the fact that in this site the other 39 chamber tombs are of granite-gneiss and limestone or of the latter only.

The passage chamber from Diamanhal is much disturbed. The passage on the south and the orthostats to which the passage abuts and on the north are in parts, with rubbles scattered around. The chamber tomb is almost buried in the ground. It is entirely of the grey limestone.

2. *Chambers with or without Port-hole*

This type seems to have been represented by the one with side orthostats fallen outwardly at Diamanhal. Many of them from Hagaratgi reported to be of large size and the others, much smaller (Taylor; p. 23. Pl. VI.) are similar to the type from Diamanhal. The type must be the same as that from Aihole described above. It is a rectangular chamber with or without port-hole (Pl. VI.) in one of the orthostats. But the chamber here is surrounded by cairn packing of stone rubbles and thus it is not strictly dolmen. There is no instance to say if the cairn was bound by a rectangle or a circle. In Kodekal many of the chambers are partly buried and partly almost concealed in the cairn packing of rubbles. Some chambers here appear to have been divided into at least two compartments.

3. *The Port-holed Dolmenoid Cists*

The chamber tomb at Hagaratgi (Pl. XIX; 1) though disturbed gives a clear idea of the type. The chamber is interiorly 1.45 m x 1.65 m and has a passage 1.60 m l. and 1.40 cm h and 45 cm w interiorly on the south. The top edges of the orthostats on the west, north and east sides are broken. The orthostat on the south is broken into three pieces, but not disturbed from their positions. The side orthostats are each 2.55 m l and outstretch at both the sides across the ends of the front and the rear orthostats.

The passage chamber is surrounded by cairn packing of stone rubbles much of which is disturbed. The cairn in turn is bound by a circle of stone slabs. The circle is 6 m to 6.75 m in dia. The passage cuts the circle and terminates at the outer edge of the circle which is again a noteworthy feature.

The capstones of the chamber and of the passage are missing. The passage chamber is about 60 cm h from the surface.

Small trees and thorny bushes have grown over the passage chamber.

There is one interesting feature about the passage. The top edge corners of the front ends of the flanking slabs of the passage are cut. This device is contrived

perhaps to minimise the dimensions of the front opening of the passage appearing in the circle. Now, suppose a capstone is set on the cut tip edge, the opening becomes narrow. To obtain a small front opening of the passage in the circle is a feature more common with the passage chambers of the Kaladgi group described above. We have already observed that the passage instead of terminating at the inner side of the circle as in the case of Konnur and Terdal groups, actually intrudes into the circle and ends at the outer edge of the circle in the Talikot group.

Now it may be recalled here that the southern orthostat consisted of only one slab instead of two slabs with a gap in the middle as an entrance from the passage as in the passage chamber of the Konnur group. It goes without saying, therefore, that there must have been a port-hole in the southern orthostat as an entrance into the chamber from the passage. Of course, the port-hole is not now visible owing to the accumulation of the debris on either side of the orthostat. This type is similar to that (Pl. XVIII; Fig. 16; 4.) at Aihole. Here the passage is long.

Another chamber of this type is reported by Taylor (1941 : p. 23. Pl. VI.) from Hagaratgi, and is described "as remarkable for its size as for a peculiarity in the entrance" which he did not notice elsewhere. He briefly described it with two illustrations and excavated it.

It consisted of a chamber formed with four orthostats on the sides covered with a capstone on the top and with a short passage probably on the south (the orientation of the passage is not given). The passage approaches a port-hole in the orthostat. The floor was found to have been paved with slabs, a noteworthy feature.

The side orthostats are about 4.60 m and 1.98 m h and the front and the rear orthostats, about 1.82 m l.

4. *Cairn Stone Circles*

In all the three localities cairn stone circles are found. In Hagaratgi, they are concentrated in the eastern part of the site (Taylor; 1941; Pl. V.) and about 20 in number. Two are double circles. Now, none of them is extant. There are two cairn ash circles in Diamanhal. The circle is formed with lumps of scoriaceous ash obviously obtained from the nearby ash mound in Kupi.

5. *Round Barrows*

Six round barrows were noticed by me at Kodekal. The barrows in general in Kodekal are about 5 m to 6 m in dia. and 10 cm to 15 cm at the maximum. At the edge it is not bound by either a circle or a rectangle.

Whether these barrows actually contain cist or pit burials is not evident on the surface. However, at Kodekal owing to the earlier disturbances to some of the barrows, the top edges of the orthostats of the cists in them are visible.

III. The Rajankolur Group

The megaliths at Rajankolur (Taylor; 1941 : pp. 24-28; pp. 88-92, with sketches at pp. 90-91 and Pl. IV. ARADH; 1940-41 : Pls. XII a and b; XIII a and b.) form a separate group by themselves.

Rajankolur is only about 4 km to 5 km north-northeast of Kodekal.

The locality is situated at the foot of a long and steep range of a limestone hill. West and south-west of the village are prominent hills of sandstones. The hills and the outcrops, here and there, curve into deep valleys. The surface rock layer almost everywhere is detached into slabs and rubbles especially near the valleys. The fields in between these hills are plain with black cotton soil and red soil. There is a rivulet locally called "Ooti Halla", a tributary to the Don river to the west of the village.

The Megalithic Site

About 1.50 km west of the village on the right side of the Hunasgi-Kodekal road is the site, in a plain stony wasteland locally called *Sarkāri Phaḍe* (Government land) of about 8 to 10 acres in area, surrounded by cultivated fields. Nearby this land on its eastern side is a rivulet, and on its north-eastern side, is an exposure of shaly sandstone yielding roughly rectangular slabs.

The site is plain and sloping southwards. In it are found about 90 chamber tombs scattered all over the site (Pl. XVI; 1). They are locally known as Āryara Moriya Gudi (the temples of the Arya Mauryas).

The chamber tombs are in various states of dilapidation. Some tombs are buried upto the top in the ground; some, partly buried and some, almost from above the ground. Those that appear almost completely from above the ground, do not have circle or rectangle or cairn packing enclosing the chambers like those of Konnur described above. Thus the chambers are freely standing in the ground. About 300 m north of this site, to the left of the Rajankolur-Tirth country track are four cairn stone circles. In the centre of these are cists.

Types of Megaliths

There are two types : chamber with or without port-hole and cist-circles; the former being the most predominant.

1. *Chambers with or without Port-hole*

This type is similar to that of dolmen with or without port-hole of Aihole, in plan and elevation. Occasionally, there may be a port-hole in any of the orthostats on the short sides. Whether the presence of a port-hole is an occasionally or considerably a regular feature is difficult to know in view of the fact that one of the front or rear orthostats of most of the chambers is usually missing that might have had a port-hole. Sketch Nos. I & II of Taylor show many chambers with port-hole. Plate XIIa of the Annual Report (1940-41) of the Archaeological Department of the former Hyderabad state, illustrates a chamber with a port-hole in the southern orthostat. I could notice only two chambers with port-hole (Pl. XVI; 2, 3) and both are partly buried, the port-hole being almost at the ground level. Whether the port-hole was closed with a slab cannot be known since the extant examples are open without any covering. On the exterior sides of two or three chambers, small remnants of rubble packing are extant. With these disturbed examples, it cannot be known how the rubble packing, if any, was bound at the edge. But there is one chamber that seems to have been surrounded by a rectangle.

The majority of these chambers are rectangular on plan while a few, nearly square. The longer axis of many of the rectangular chambers is usually and roughly north-south oriented and that of some east-west oriented. Thus there appears to be no one particular orientation for the chambers, like that of the passage chamber of the Konnur type. Similarly, the port-hole may face any direction. The port-hole of one chamber noticed by me looks south (Pl. XVI; 2) and that of the other, west (Pl. XVI; 3). The port-hole is invariably pierced roughly in the centre of the orthostat and circular; never on the edge. It varies in diameter; for instance, the south-looking port-hole is 35 cm and the west-looking 10 cm.

The dimensions of the chambers are strikingly varried (Pl. XVII ; 1,2). One of the biggest would on an average measure interiorly 2 m (E-S) x 1.50 m (E-W), the height being 1,20 m ; while the smallest, 50 cm x 50 cm and 20 cm h, from the ground level. The other chambers are of different sizes in between these two.

The side orthostats paralleled to the longer axis of the big chambers are invariably large, usually measuring about 3.30 m l and 30 m h and 20 cm to 30 cm and the other two orthostats are about 1 m to 1,20 ml. But the capstone is all the more the biggest, usually about 4.15 m l, 2.70 m b and 20 cm to 30 cm. Those of the smaller ones would measure 60 cm to 80 cm and 40 cm to 60 cm respectively along the east-west and north-south sides, while the capstone would be 2.50 m x 2.20 m. There are about 30 chambers standing almost from above the ground, 25 chambers partially buried in the ground and 20 cists.

2. *Small Dolmenoid Cists and Cist*

These are very small (Pl XVII ; 4,5) measuring 30 cm x 50 cm to 70 cm-50 cm and 10 cm to 15 cm h found rather concentrated in a part of the site. None of them bears a capstone.

3. *Cist Circles*

These are found, as mentioned above, about 300 m north of the above site, in a plain uncultivated field. There are four cist-circles. The cist in general, nearly by square on plan is surrounded up to the top by rubble packing which in turn is bound by a circle. Actually, the circle is partially visible in only one case. The others too perhaps have bounding circles that may have been concealed in the overflowing cairn. One measures 13 m in dia, another, 21 m.

Evidently, the cists are buried in the enclosing cairn and perhaps not in the natural ground, as the cairn is considerably high, i.e., about 50 cm to 80 cm from the present natural surface. In view of this architectural feature, it is likely that the other chamber tombs described above might have had similar enclosing cairn packing bound by a circle. If this is so, typologically, there is no difference between the above two types : the chamber tombs and the cist-circles. The present classification is therefore, according to their present states of existence, for a proper study.

Raw Materials and Dressing

The most preferred stone for chambers is the grey limestone available from the local outcrops of the Bhima series. Occasionally sandstone and granite-gneiss slabs are also used, particularly in Kodekal. As a matter of fact, the orthostats of some

chamber may be of grey limestone; another of granite-gneiss and the third, of sandstone. However, no passage chamber is built with granite-gneiss slabs even though they could be quarried in plenty from the nearby outcrops and used for the other types of chamber tombs.

The cairn part of the megaliths consists of rubbles of granite-gneiss, sandstone, limestone, quartz and Deccan trap.

The bounding circle of the megaliths in Diamanhal is formed by the scoriaceous ash lumps and at Salvadgi, of granite-gneiss boulders, whereas the chamber within, is usually of limestone. It may be recalled here that Kodekal is a region spotted with a number of hills of peninsular gneissic complex and of the Bhima series comprising sandstone, quartzitic sandstone, limestone, conglomerates and the Deccan trap. This would explain the use of the different kinds of stones in the constructions of megaliths in general.

As usual, the slabs of the chambers are not dressed, as they are available in convenient forms. The granite-gneiss slabs may have rough hammering at the edges. The exterior sides of the limestone slabs of the circle of the passage chamber at Hagaratgi is well chiselled like that of Bandapanhalli (Pl. XXX ; 4).

In Hunasgi where cairn stone circles and disturbed cist-circles are found, neatly cut and finely dressed rectangular blocks of sandstone, conglomerate (Pl. XXX; 2) and limestone from the nearby disturbed megalithic burials were found stacked along the borders of the cultivated fields.

IV. The Jewargi Group

In this group are studied three sites: Chikanhalli Jewargi (Bk) and Andola. Chikanhalli is only about 10 km east-north-east of Rajankolur. The other two localities are about 85 m roughly to the northeast of Chikanhalli.

Jewargi (Jiwargi of Taylor ; 1941 ; p. 1) known as Jewargi in the revenue records is a Taluka place in Dist. Gulbarga located between Gulburga and Shahapur. It is about 85 km north-north-east of Rajankolur. Near this village within less than half a km, is another locality called Jewargi (Kd). About 8 km, north of Jewargi (Bk) runs the Bhima river east-south-eastwards.

Andola, is about 8 km south-east of Jewargi (Bk), Chikanhalli, though far away from the other two localities is included in this group, on the basis of the similarity in the megalithic types.

In these localities, Taylor was the first to notice megalithic sites, excavated a few and published excellent papers embodying the results of his investigations (1941 : pp. 1-18 and 29-31) and also of his discoveries at Mandewal, Ijeri (pp. 42-44. Plan 14) and Kollur (p. 54) which are within a radius of 10 to 20 km westsouth-west and north of Jewargi (Bk). There was another site near Gurmatkal mentioned by Taylor (pp. 71, 72) which is about 65 km as the crow flies, south-east of Jewargi (Bk) in Tk. Yadgir. Long after Taylor's discoveries, the Department of Geology (JHGS ; 1947 : p. 56) of the former Hyderabad state, discovered a stone alignment in Jewargi and megaliths in Shahabad, Chitapur, Ravur, and Ekmai, and other localities (List of the sites, below :

Nos. 121, 127 and 128-145, 217). These localities are within a distance from 35 km to 50 km east of Jewargi and are near a river called Kagine, a tributory of the Bhima.

The tract of the land in which the above localities are situated is plain and spotted with numerous hill ranges especially of the limestones of the Bhima series and of the Deccan trap in the northern part and of the granite-gneiss in the southern part, overlain by the sandstone, limestone etc. of the Bhima series. The plain fields surrounding these hills and drained by the Bhima and its tributaries have a thick cover of the black cotton soil. Field boulders of the Deccan trap detached from the hills owing to erosion and brought down by the rain water, are found scattered in the fields. Especially near the nullahs and the rivers, the horizontally bedded sandstone and limestone slabs of any required size can be easily obtained.

The Megalithic Sites

I visited Jewargi (Bk), Shahabad, Gurmatkal, Andola, Ijeri, Mandewal, Kollur and Ravur. No trace of megalithic tombs could be noticed in any of the last five. The site in the third could not be located. It seems as the fertile lands in which the sites were situated have been brought under cultivation, all the surface indications of the tombs were thoroughly removed in course of time. The site plan of the megaliths at Andola is illustrated by Taylor (Pl. XIII, plan No. 6) showing 34 cairn stone circles. In the same site examined by me not a single stone circle is extant during my visit.

The megalithic site at Jewargi (Bk) is preserved, fortunately, by the Department of Archaeology, Government of Karnataka. Similarly, a few megaliths in Shahabad are extant perhaps owing to their situation on the top of a low, small and isolated hill which on the surface is rather too stony and with thin soil cover for cultivation. Excepting, therefore, these sites the account of the sites of some of the other localities given below is completely based on Taylor's report.

The Megalithic Site at Jewargi (Bk)

The site locally called Sangappan Maradi is situated about 3 km north of the village and to the left of Jewargi-Gulbarga road nearby, in the plain field sloping southwards towards a small rivulet, a tributary of the Bhima river. It is about 350 x 200 sq m in area now. In all, there are now about 110 cairn stone circles and round and oblong barrows. Taylor (p.8) reported that the area of this site was 336 x 216 yards and that there were 375 megaliths, small and large.

The site is plain, sprinkled with limestone rubbles and is surrounded on all sides by cultivated fields. The soil is greyish black and overlies the limestone rock. Not far away from the site along with the edges of the cultivated fields and in the shallow valleys of the nullahs, field boulders of the Deccan trap are loosely scattered about, in large numbers.

Types of Megalithic Burials

As mentioned above, there are about 110 megalithic burials in the site. They are near one another, but not in any regular order. Broadly, there are two types : cairn stone circles and round and oblong barrows. In each type, again, within the circle of some are two parallel slabs in upright positions with a small gap in between

forming a passage roughly south oriented and partially concealed in the cairn. Further, the cairn stone circles with or without passage have either single or double circles. In many of the megaliths there is depression in the centre of the cairns. Some of the stone boulders of many circles are either missing or displaced.

TABLE

Types of Megaliths.

No.	*Types*	*Numbers*
1.	Single cairn stone circles without passage.	22
2.	Double cairn stone circles without passage.	12
3.	Single cairn stone circles with passage.	9
4.	Double cairn stone circles with passage.	3
5.	Barrows without passage.	8
6.	Barrows with passage.	12
7.	Cists with their cairn and stone circles if any missing.	14
8.	Disturbed.	30
		110

The cairn stone circles and the barrows are segregated. The former is concentrated in the northern part of the site while the latter, in the southern part.

1. and 2. *The Cairn Stone Circles, without Passage*

Architecturally this type is very simple. It consists of a circle single or double of undressed boulders enclosing cairn packing of stone rubbles (Pl. XIX; 4.). The cairn packing is rather hemispherical. The field boulders are mostly of black trap, their surface being jet black; the stone rubbles of grey or whitish grey. Thus, the circle and the cairn are quite distinct from each other owing to the contrast in the colours. The boulders mostly appear from above the ground and more or less of similar size.

In the case of double circles, the space in between the circles is also filled in with similar stone rubbles.

The single stone circles measure in the general from about 4 m to 6 m or 7 m to 9 m externally in dia. The smallest is externally 4 m in dia. and in the biggest, 12.60 m. There is only one of each of these dimensions. Those consisting of double circles in general, are 6.50 m and 8.50 m externally in dia and the smallest and the biggest being 5 m and 7 m, 8 m and 11 m respectively.

The space in between the two circles is roughly from 60 cm to 1 m across.

The field boulders are roughly spherical and about 50 to 80 cm in dia. The cairn packing is about 40 to 60 cm h at the centre. The number of stones of each circle depends upon the dia of that circle.

3. *The Cairn Stone Circles with Passage*

But for the passage partially visible from the cairn packing within the circle,

this type is similar to the above types. The passage is formed by two slabs kept parallel to each other in upright positions with some space in between. It is usually oriented somewhere between south-west and south-east. The front end of the passage is near the southern arc of the circle and would not touch the circle. Only a part of the passage from front end is visible where the cairn is less high the rest being hidden in the elevating cairn. The disturbed cairn of a few cairn stone circles with passage, discloses that the passage is generally from 1.50 m to 2.30 m 1 and from 40 cm to 60 cm interiorly. Whether the passage forms part of a chamber hidden in the centre of the cairn and whether the former leads to the latter is not evident on the surface.

Nevertheless, the excavations of some of the megaliths here and of two in Andola by Taylor and his illustrations, give a complete idea about the interior architectural features.

From the illustrations (Pl. IX, X, XI) it is evident that the passage leads into the centre of the cairn only where there is no chamber. Further, the cairn which is generally from 1 m to 5 m deep in the centre, overlies a pit cut in the hard and compact natural soil.

The pit is about 1 m to 1.50 m deep which contains an oblong chamber at the bottom. It is in this chamber that skeletal remains and burial furniture and also, sometimes, outside the chamber on the sides and the top are placed.

Thus, there is actually no connection between the cist in the pit below the passage in the cairn above. One thing that is worth noticing about the passage and the chamber is that both are oriented in the same direction. Obviously, therefore, the passage is symbolic and indicates the orientation of the cist below.

Out of eight stone cairn circles four in Jewargi and two in Andola, excavated by Taylor, the presence of passage (or 'entrance stones' as described by him) is mentioned only in the case of the first and the second of Jewargi (pp. 10-13) and no one of Andola (p. 50). Whether the other excavated had the passage in the cairns, is not reported. Further, the second which had "the upright stones above the ground in the south-west side" (p.13) did not contain cist in the pit below. The third cairn was also found to be without a cist and there is no mention of a passage in the cairn packing. The first and the fourth of Jewargi and the two cairns of Andola possessed cists in them, but there is no mention if there was a passage in the fourth cairn of Jewargi and the second one of Andola.

From the above observations on the excavations, it may be noted that whether the passage was an invariable feature of the stone cairn circles with cists is not estab lished and that the passage may be found even in the stone cairn circles without cist.

The number of circle, single or double, is not suggestive if the respective megalith contains a cist. The second of Jewargi which is without a cist, has double circles. The cairn 'No. 2' of Andola which contained a cist had probably one circle.

Barrows with and without Passage

This type is indicated by heaps of stone rubbles unbound by a circle of stone boulders. These barrows are either circular or roughly oblong (i.e. rather oval shaped) on plan.

The circular barrows are from 4 m to 15 m in dia and from 25 cm to 60 cm h at the centre and the oblong barrows, from 3.50 m x 5.00 m to 6.50 m x 7.50 m and about 30 cm to 50 cm h in the centre. Like the stone circles, there may be a south oriented passage partially hidden in the cairn, the front end of which is visible from the middle of the cairn on the southern side.

Cists

Originally, these cists, about 14 in number in the site, were covered under cairn packing and owing to disturbances in the course of time they are now exposed to the view. They, therefore, belong to either of the two types ; the cairn stone circle or the barrows.

But the cists are in the ground level the top edges of the orthostats of which appearing a little from above the ground (Pl. XIX ; 2) unlike the cists of the stone cairn circles which are in the bottom of the pit cut in the natural soil and thus below the ground level. None of them has a capstone on the top. Taylor (p. 9 and 48) reported that some of the "cairns have long stone chests formed of thin slabs of limestone laid edgewise, upright, and projecting a little above the surface. None of these have tops or lids".

A NOTE ON THE OTHER MEGALITHIC SITES NEAR JEWARGI

Before closing the study of the megalithic remains in the zone of the Bhima series, a passing reference is made to the types of megalithic remains found particularly in three localities within certain reasonable distances from Jewargi (Bk). They are Mandewall, Ijeri and Shahabad, the first two are about 15 km south-west of Jewargi (Bk) and the last is about 30 km east.

Regarding the first two, only illustrations of Taylor with some references are available. I had visited the site in Shahabad.

From Taylor's references and from the surface indications at Shahabad, it has not been possible to ascertain if they are similar to the types of Jewargi (Bk) or different from them. Therefore, these remains have been treated separately.

1. *Mandewall Site*

The megalithic site, which now is destroyed is illustrated by Taylor (p. 112, plan No. 14). A brief general account about the megaliths is also given (pp. 43-44). Accordingly, there are two types of megaliths.

1. Cairn stone circles .... 9 nos.
2. Rectangles. .... 5 nos.

Of the two the latter is particularly interesting as no rectangles are elsewhere either reported or found by me in the zone of the Bhima series. The most common feature of the megaliths in this part is the circle, as we know from the above study.

These megaliths consist of cairn circles which are usually enclosed in rectangles and in one there are two concentric rectangles. Within the inner circles and in between the rectangles and the circles, there is a firm-packing of stone rubbles. Taylor described the rectangl s as platforms.

Their sizes are also remarkably very big. One rectangle is 54 m square ; another 45 m and the other 37.80 m.

The types of rectangles recall those of the Terdal, and Soundatti groups, but for the interior cairn circles the nature of which is unknown.

2. *Ijery Site*

A stone alignment of 'square' type was noticed here by Taylor (p. 111, plan No. 13). As per the illustrations, there were six straight lines on each side ; the alignment in all having 64 menhirs originally. When Taylor noticed it some stones here and there were missing. Some menhirs were quite large ; about 2.40 m to 3 m l, 1.20 m to 1.80 m and 90 cm to 1.20 m.

In two of the squares, a cairn stone circle each was found. It may be recalled here that the presence of a few cairn stone circles within the squares of the stone alignment at Vibhutihalli mentioned below was illustrated by Taylor.

There were three cairn stone circles, one of them being of double circle, in another place within a km from the above site of the stone alignment.

3. *Shahabad Site*

The site is on the flat summit of an isolated north-south oriented hill of limestone etc. which lies about half a km west of Shahabad railway station (on the Bombay-Madras line of the South-Central Railway). There is also a tomb of a Muslim saint surrounded by a compound on the hill.

There are eight round barrows in the site. They are simple hemispherical heaps of limestone rubbles and earth and circular on plan, ranging from 8 m to 13 m in dia. and from 40 cm to 90 cm h at the centre. They are irregularly spaced roughly in north-south direction.

One of the biggest of the barrows, near the Muslim tomb, is very badly disturbed disclosing the devasted parts of a stone circle within the barrow. The probable diametre of the circle : 5 m (externally) ; dia of the barrow : 13 m ; height of the barrow : 50 cm.

The circle is formed by the limestone slabs placed flat and close to one another.

There is one interesting feature peculiar to the barrow ; a rectangular court measuring 11.50 m (E-W) x 5.90 m (N-S) externally attached to the southern periphery of the barrow. It enclosures an open area of 8.50 m (E-W) x 3.80 m (N-S). It has a gap on the southern side in the middle, forming an entrance of about 90 cm.

The enclosure is indicated by a wide low bund of stone rubbles indistinctly visible on the surface. Only a trained eye can distinguish it from the surrounding area which apparently has a similar appearance.

5

MEGALITHS IN THE PENINSULAR GNEISSIC COMPLEX ZONE

Environment

The southern and the middle parts of the region, nearly two-thirds in area, covering Dists. Bellary, Raichur, the north-eastern part of Dist. Dharwar, the southern parts of Dists. Gulbarga, Bijapur and Belgaum and, almost entire Dist. North Kanara, are composed of the rocks of the peninsular gnessic complex.

These rocks rest against a series of the bands of the Dharwars outcropping at irregular spaces and are overlain by the Kaladgi series and the Deccan trap in the southern parts of Dharwar and the middle western part of Raichur and, likewise, by the Bhima series and the Deccan trap in the middle eastern part of Bijapur and the south-western and north-eastern parts of Gulbarga, or surrounded by their outliers, and by the laterite, in the coastal plains surrounding prominent exposures and with thick mantle of soil bearing heavy forest in North Kanara.

The granite-gneiss rocks, owing to their varying colour, texture etc., and metamorphism, are together known as the peninsular gneissic complex, leaving the area of granite-gneiss zone overlain with younger rocks which will be dealt with separately, the remaining part covering the western part of Bellary, Raichur, the north-eastern part of Dharwar and the south-eastern part of Gulbarga, forming an unbroken stretch of land is considered below for study of the megalithic remains there. North Kanara and south-western Belgaum are omitted here as they practically lie outside the region actually studied by me and as no megalithic remains have been reported from there till now.

The entire area is traversed by many complex ranges of hills in between the five narrow belts of the Dharwar rocks : the Raichur belt, the Maski belt, the Sandur belt, the Kushtagi and the Gadag belts. They are generally composed of masses, almost bare of vegetation but for scattered babul and other trees and low thorny scrubs growing in crevices. Usually, they split into boulders of enormous sizes and

curious shapes in grouping themselves in lines and castellations, sometimes poised on end as single tors or crashed down the hill sides. At many places, the hills show continuity roughly north-west-southeast oriented. In some other places, they exist as isolated knobs or rugged ridges forming prominent landmarks. In the middle western part and the north-eastern and northern parts of Dists. Raichur and Dharwar there are, however, few hills. The landscape is generally plain.

In these rocks are developed aplites, pegmatites and quartz veins especially in the contact zone of the Dharwars and the granite-gneisses.

The laminated granite-gneiss can be detached into slabs of any required size by a simple method of litting fire along the natural cleavages and beating with hammer sometimes after. The top surface of most of the exposed hills, owing to the inclemencies of the weather, split into thick roughly rectangular slabs. They are generally clearly bedded.

It is noteworthy that the Sandur belt of the Dharwars between Hospet and Bellary contain numerous beds of haematite exceedingly rich in iron ore of high grade, while the other belts besides having ferruginous quartzites rich in iron ore, are associated with auriferrous quartzites. The Hatti gold mines are situated in the Maski band. All these bands were prospected for gold and iron in ancient times and a number of old workings of these minerals are situated in all these lands (Munn, L. ; 1921 : pp. 1 to 11, 1934 ; pp. 77-100. Allchin, F.R. ; 1962 : pp. 194-211 ; Thapar, B.K. ; 1957 : Fig. 2).

Vast stretches of thick layers of the black cotton soil cover the rock bed in the western part. The eastern part is either red or brownish, sandy occasionally with patches of the black cotton soil here and there.

The area is drained by the Tungabhadra and her tributaries such as Hagari etc, in the southern part and by the Krishna and the Bhima, and their tributaries in the north.

Megalithic Sites

Taylor (1941 : p. 63) was the first to make an attempt to collect information about megaliths in this part. In response to his request Pelly supplied him a list of 9 sites with about 2,100 megaliths in all, situated in Dist. Bellary and in the western strip of the adjacent Dist. Anantapur (Taylor, M ; 1941 : p. 55) about the megaliths in Kosgi (in Dist. Anantapur, near the present eastern border of Dist. Ballary) and about these near Yemmi Gudda, and Mallapur (1941 ; pp. 55-60). Later on, Foote (1916 : pp. 22-23 and pp. 127-8), the Department of Archaeology (ARADH ; 1927-28 : p. 30 ; 1933-34 : p. 7; 1935-36: p. 1,2 and 59; 1936-37 : p. 8, 15 and 1940-41) and the Geological Survey : (JHGS ; 1934 : pp. 121-135 ; 1936 : pp. 76-82 ; 1941 : pp. 53-54, 85-89 and 156-161 and 1947 : pp. 56-58), Subba Rao (1949 : pp. 64, 72, 93 and 166-7 of his unpublished thesis) and Allchin (1956 : pp. 133-36 ; 1960 : pp. 6-9) noticed many sites in several parts of the zone.

Thus, there are many megalithic sites, in about seventynine localities so far noticed (the list of the sites below : 45-48, 75-84, 94-95, 110-112, 117-126, 146-152, 194, 196-200 etc.) scattered in groups all over the zone, situated in the plains, at the

foot of the hill ranges and in the extensive hill terraces, particularly near some perennial sources of water. While the megalithic burials such as stone circles, cairn stone circles, dolmens, port-holed dolmenoid cists, stone alignments etc., are found in the sites in the eastern part, there are scarcely any such surface indications of the burials in the western part. The burials in the latter could be known, only by chance owing to disturbances etc., in some sites.

The sites found in each of the parts are spread in many localities close to one another. According to the density of these sites in the different parts in the zone, they may roughly be grouped, for the convenience of study and to know the individual features, if any, of each group, as follows :

I. The Lingsugur group.
II. The Sagnakallu-Hire Benkal group.
III. The Manvi group.
IV. The Maski group.
V. The Shahapur group.
VI. The Gajendragad group.

I. The Lingsugur Group

There are three sites in this group : Lingsugur, Tawargeri and Piklihal (List of the sites below : Nos 146-149).

Megaliths in the Lingsugur Area

Lingsugur, a taluka headquarters in Dist. Raichur is 20 km north of Piklihal and about 25 km north-west of well known Maski.

About 5 km west of the town is a hill locally called "Billamarāyana Guḍḍa." At the foot of the hill, on the eastern side, were megaliths and neoliths (ARADH-1927-28 : p. 27). Earlier, Bruce Foote (1916 : p. 122) collected neolithic greyware pottery here.

Another locality, Kadkal, about 5 km north-west of the town, was found to have about 40 megaliths. About 4 km south of the town, near Huligund (ARADH ; 1927-28 ; p. 30) were located some megaliths.

Thus, there were some megalithic cemeteries with a large number of megaliths in the Lingsugur area and formed one of the nuclei of the megalithic settlements.

The megaliths near the Billamarāyana Guḍḍa were, for the most part, squares with circles around them.

A typical specimen consisted of a square cist formed with boulders surrounded by a circle of granite field boulders. There would be a passage for entrance to the cist, on the southern side in some. In between the circle and the passage-cist was another circle of usually slaggy ash lumps and cairn of stone rubbles and earth. Another type was a rectangle, sometimes as big as 12 m square enclosing a circle of boulders. (ARADH ; 1927-28 : Appendix C).

The megaliths on the eastern side of the hill where also were found iron slags as well as considerable quantity of imported ferruginous quartzites and other iron ores, were classified into six types (ARADH; 1927-28 : p. 30), including the two types described above, by Munn along with individual plans of sixteen megaliths of which ten

were numbered, illustrating the six types (plates H, I, and J). The six types, according to Munn, with reference to the respective illustrations are :

1. *Stone circles* : Two in the plate H. One of them is rather oblong. The circles are of granite field boulders.

2. *Oblong graves* : One in the plate J and No. 6 of the same plate. The circles are of slaggy ash lumps.

3. *Oblong graves* : Without intermediary ash circles described above. One each in the plates I and H. The cist has a passage on the south and is of granite field boulders.

Oblong graves : With intermediary ash circles. No. 1 in the plate H (and also in Appendix C), described below and No. 4 of the same plate. The cist of the granite field boulders has a passage on the south.

No. 7 of the plate J : the passage cist is surrounded by a circle of ash lumps.

No. 9 of plate I : The cist with a passage on the south-east, is surrounded by a circle of field boulders.

No. 10 of the plate I : Only the south-oriented passage of the cist remains. The enclosing circle is of field boulders.

One in the plate H : Similar to No. 10 of the plate J.

4. *Square platform with graves at the centre* : The platform encloses a circle of boulders. One in the plate I both the circle and rectangle are of field boulders.

5. *Square platforms with graves having ash circle in between* : No. 11 in the plate H. The cist has a passage on the south and is surrounded, first by a circle and then by a rectangle. All of them are of field boulders.

No. 8 of the plate I : Similar to No. 11. But the circle is of ash lumps, probably the rectangle is double lines.

6. *Square platforms enclosing only ash circles.* No. 2 of the plate H (also No. 2 of Appendix C). The circle is of ash lumps and the enclosing rectangle, of field boulders.

It may be noted here that the types 2 to 6 are perhaps remnants of only one type, viz. passage chamber surrounded by a rectangle, sometimes with a circle in between. This type is the most predominant in the zone of the Kaladgi series which is dealt with in the Chapter II.

Hence, chiefly there are two types only : the stone or ash circles and the passage chambers surrounded by a rectangle and also by a circle sometimes.

Examples of the types 3 and 5 were illustrated and two megaliths were excavated by Munn. The excavations will be referred to below in the chapter VII.

Megalithic Remains in Tawargeri

About 23 km south-west of Maski, on the Lingsugur-Gangavati main road, is Tawargeri. There are isolated knobs and ranges of granite hills here and there and especially to the south and east, in this locality.

Existence of a neolithic site to the south of the locality is previously indicated (JHGS, 1934: Map No. II), probably the same site on the terraces of a cluster of hills

called Gāṇagitti Guḍḍa (female oil producer's hill) in S. No. 180 and Jaṭṭam Malḍi explored by me.

On the north side of the hills is another cluster of granite hills locally known as Sante Bazaar Doni and Mānappayya and Timmappayya Guḍḍa (S. No. 198, 199) that forms a valley with the first. On both sides of the hill Sante Bazaar Doni is an early historical site, with black-and-red ware pottery having crackled slip, red ware pottery comprising the russet-coated white painted ware etc.

On one of the vertical surfaces of a huge boulder, in the Sante Bazaar Doni (S. No. 199) facing east and commanding the view of the early historical site below, are beautiful rock-bruisings of bulls.

In the western part about half acre in area of the early historical site fringing the western periphery of the hills and extending almost upto Gangawati-Tawargeri main road, are thickly strewn iron slags and lumps of ores suggesting iron smelting activity in antiquity. It may be added here that another iron-smelting site with iron slags, fragments of terracotta pipes with blistered surface, is found in a medieval habitation site, locally called Kabbinada-Tippi Hola (S. No. 264), that lies in the western vicinity of the village.

A little away from the early historical site about 7 or 8 m to the left of Gangawati-Tawargeri road, are some megaliths. Another group of megaliths is found to the north-east of the site about 100 m away. Both groups are in the plain fields. The early historical site and the field surrounding the second group are cultivated. The surface of the first group with small hills a little further west is stony waste and is, therefore, uncultivated. This area is locally known as Alagan Maradi.

There are seven cairn stone circles in Alagan Maradi, in a rather zigzag north-south row, and near to one another and four more scattered here and there further east of the first group.

As usual, the circle consists of undressed, circular field boulders of granite-gneiss, placed close to one another. Within the circle is the cairn packing of granite-rubbles and quartz pebbles raising gradually from the circle towards the centre. They are, on an average, about 6 m in dia.

One of the stone circles, 6.50 m in dia., encloses a roughly rectangular chamber, 3.30 m x 3.70 m. There is a line of boulders, about 2 m l, perhaps the flanking side of an external passage on the southern side of the circle.

Further eastwards, after crossing the road, at the foot of Jettin Guḍḍa, beside the eastern border of a cultivated field called Anera Venkaṇṇa's Fields (S. No. 195), is a cairn stone circle, 7.50 m (externally) in dia. Inside the circle, terminating at the southern are is a passage, 70 cm l x 50 cm b internally, formed with two thick uneven slabs of granite (30 cm). Whether the passage proceeds from a chamber within the circle is not visible.

Again, north-east of Mānappayya Guḍḍa is a double stone circle in the cultivated field. The inner circle, 5 m in dia has a passage 90 cm b x 60 cm w, on the south, terminating near the inner side of the outer circle.

There are also two cairn stone circles in this area.

The exteriors of the circle of one of the stone circles and of the inner circle of one of the passage stone circles, are roughly dressed.

In Tawargeri area, there are thus two types : cairn stone circles and passage chambers.

Megaliths in Piklihal

Piklihal is about 20 km south of Lingsugur on the same main road, between Gangawati and Lingsugur and about 5 km south of Mudgal. Maski lies about 20 km away east of Piklihal, Allchin (1960 : p. xii) discovered an ancient site with the remains of neolithic, megalithic and early historical cultures and excavated it, on a small scale in the same year. In his report of the excavations is included a brief note on the megaliths (pp. 6-9) in the site along with one line drawing (Pl. 9) and two photographs (Pl. VIII, a and b).

There is a range of granite hills broken here and there into clusters, in east-west direction to the north of the village a little less than a km away. The Gangavati-Lingsugur road runs though it. It is on the southern side of these hills and to the west of the road from the 13/6 milestone that the three groups of megaliths reported by Allchin, are situated. The site and the megaliths have been well described in the report.

1. Cairn Stone Circles

Now none of the four stone circles of the Group I are found. Group II which is typologically more interesting, though damaged here and there, fortunately still exists.

There are nine megaliths in this group : five stone circles, one double stone circle, two dolmenoid cists with forecourt and another with rectangle with a forecourt partially disturbed.

2. Dolmenoid Cist with a Fore court

This megalith consists of a squarish dolmenoid cist (Pl. XIX; 3) surrounded by a circle with cairn of granite rubble and scoriaceous ash lumps, sloping from the cist towards the circle. The circle externally has roughly semi-ovaloid court added on to the southern arc.

The walls of the cist consist of closely juxtaposed undressed boulders and blocks of unequal shapes and sizes ranging from 20 cm to 60 cm in height from the present interior ground level. There is a gap of 50 cm wide left in the centre of the southern wall, as "entrance". There is no capstone now. Within the chamber are scattered very sparsely stone rubbles and one or two scoriaceous ash lumps. Slaggy ash lumps are now present only on the northern part of the cairn.

The stones of the circle and of the forecourt are also boulders and blocks of various sizes and irregular shapes. The circle is perfect.

The forecourt projecting from the southern arc of the circle is an imperfect semi-circle or oval, bound by two rows of stone boulders, and with a gap exactly in alignment with that of the chamber. No cairn is found within the court. Addition of a court to the circle of a megalith in general is most unusual. However, this is a feature occasionally found in a few passage chambers in the cemeteries at

Terdal-Halingali and Kaladgi described above. The megalith measures as follows :

The dolmenoid cist : 1.50 m x 1.50 m internally 50 cm high on average from the interior floor level.

Circle : 7.50 m dia externally.

Forecourt : 6.90 m (E-W) at the rear 9.60 m (E-W) at the front 6.90 m (N-S) internally from the circle to the entrance of the forecourt.

Width of the stone rows : 0.90 cm on an average.

There is another dolmenoid cist-circle with a roughly rectangular forecourt on the south, similar to the above one. The rectangle of the forecourt is, however, of single line. There is a gap in the centre of the southern wall of the cist as well as in the rectangle both being aligned in the same direction. The cist is rectangular and measures 1.50 m square; the circle, 4.50 m in diametre and the forecourt, 5.40 m (E-W) x 6.30 (N-S).

There is a partly effaced double rectangle with a semi-ovaloid forecourt on east besides the above. Its northern half is effaced. The inner and outer rectangles measures 3.30 m and 6.30 m respectively along the east-west axis and the forecourt is roughly 6.70 m externally, on the same axis. The enclosure of the forecourt is double lined. Within the inner rectangle is the sprinkling of lumps of scoriaceous ash.

West of the above megalith nearby are four-cairn stone circles including a doublestone circle. There is a thin sprinkling of lumps slaggy ash within the circle. They are from 4 m to 6 m in dia. and the double stone circle is 6.90 m and 3.60 m internally. The smallest stone circle is segmented within by an arc which is now slightly disturbed.

Four of these are surrounded by a line of boulders laid from the side of the dolmenoid cist with a forecourt.

I noticed this line actually passing through another stone circle before it enclosed the other four stone circles. This stone circle is not shown in the Pl. IX. (Allchin; 1960). It appears, therefore, the stone enclosure had been laid by the cultivators of the fields to demarcate the area of the four-stone circles, the area of which could not be brought under cultivation at one stretch.

The stone circle in between the dolmenoid cist with the forecourt and the group of the four stone circles, shown in the Pl. IX, is now missing.

About 600 m west-northwest of the Group II along the south-western slopes of the hills is another group of stone circles in association with two stone alignments (Allchin ; 1960 : p. 7; Pl. 6). There were about 20 cairn stone circles ranging from 4.80 m to 7.50 m in dia. One of them has an apsidal enclosure of 17 m wide and 21 m long oriented north-south. The circle seems to contain an inner circle and a cist.

3. Stone Alignments

There are three stone alignments in this site. One group is to the east of the megaliths of Group III. Formerly, it had twenty menhirs and aligned probably in diagonal lines and oriented to the cardinal points. A line of it has 7 menhirs. The menhirs are on an average 1.8 m h and some are roughly trimmed into squarish form.

Since the discovery, many of them have been destroyed. Seven of them could be found by me.

West of this group is another stone alignment, too disturbed to ascertain their orientation and the plan of the alignment.

The third group is to the north of the central hills, consisting about 20 menhirs ranging upto 2 m in height and here also some are roughly trimmed into squarish appearance. Originally, there were probably four rows of five stones each oriented to the cardinal points. By 1957-58, it was reduced to a group of four menhirs only.

By way of recapitulation, in Piklihal there are three types of megaliths :

1. Cairn stone circles (single and double).
2. Dolmenoid cist-circles with a forecourt.
3. Stone alignments.

While the first and the third are commonly found in the other parts of the granite zone, the second is found in this site only. The opening, in the southern wall of the dolmenoid cist had probably a passage externally for approach, a feature reminiscent of the oriented passage stone circles of Tawargeri.

The presence of scoriaceous ash lumps also in the cairn packing of the megaliths, is another noteworthy feature. However, excavation alone should decide if the ash lumps originally formed part of the cairn packing and were not due to subsequent deposition from the round about area by the cultivators while cultivating the area surrounding the megalith in question.

II. The Sangankallu-Hire Benkal Group

It is worth noting that all along the western parts of Dist. Kurnool, Anantapur (both in Andhra Pradesh), in the northern part of Dist. Chitradurga, in the eastern part of Dist. Bellary and a part of the southern strip of Dist. Raichur, all adjacent to one another, are largely dolmens, port-holed cist-circles, and stone circles. Some of the well known sites (Taylor; 1941. Subba Rao; 1949) are Kosgi, Guntakal, Mullapuram, Addaguppa, Gallapalli, Rayadurga, Brahmagiri, Sanganakallu and Hire Benkal. It is, therefore, evident that these parts of Dists. Raichur, Bellary, Chitradurga, Anantapur and Kurnool formed one of the largest nuclei of the megalithic culture in the Deccan, the parts of the Bellary and Raichur with Sanganakallu and Hire-Benkal respectively being the western division of the centre.

Some general accounts with some illustrations of some of the megalithic sites of the eastern division of this culture, such as Kosgi (Taylor; 1941: pp. 55-60), Guntakal (Foote, R.B ; 1916: p. 12, 103) Mullapuram, Rayadurga, Addaguppa (Longhurst. H.; 1912-13: pp. 41, 56-57, Subba Rao; 1949), are available. The detailed study of the megaliths at Brahmagiri by Krishna (1942: pp. 100-109) and Wheeler is too well known for repetition.

The Sanganakallu area considered as a pivot of the lower Deccan holding the key to the study and understanding of various epochs of India's history from the Palaeolithic to the Mauryan period (Dikshit, K. N. ; 1943 : p. 16) and a corridor for the migration of cultures in south India located as it is at the junction of the main transcontinental routes, was, therefore, intensively surveyed by Subba Rao (1948 and 1949). Fawcet, 1892 : pp. 247-257) noticed 'tumuli' of the circular kind (stone circles) around

the hills of Bellary and Kupgal and Subba Rao (1949 : pp. 64, 74-75), two oblong cairns (?) at the northern foot of the North Hill of Bellary ; nearly a dozen stone circles in the valley of Sanganakallu, eight well-preserved stone circles at the southern foot of the Saudamma Hill and another (megalithic ?) on the top of the hill and three menhirs (Subba Rao ; 1948 : Pl. II).

No megaliths as such were excavated in this area. But in his excavations in the habitation site on the Sannarasamma hill in Sanganakallu, Subba Rao (1948 : pp. 9-13) discovered a megalithic cultural phase the earlier part of which was overlapping with the immediately preceding Neolithic culture in the chalcolithic stage. The megalithic cultural characteristics were similar to those of Brahmagiri according to the excavator (p. 9). In 1964, again, the same area of the site and a stone circle on the periphery, probably the one noticed by Subba Rao, were excavated, by the Deccan College Post-Graduate and Research Institute, Poona and the Kannada Research Institute, Karnatak University, Dharwar (IAR ; 1964-65 : Pp. I, 53-55). The stone circle, particularly, did not yield anything and probably was not megalithic[1].

So far as the types of the megaliths noticed in Sanganakallu area are concerned, they are as follows :

1. Oblong cairns (i.e. long barrows, probably).
2. Stone circles.
3. Menhirs.

2. *Oblong Cairns*

The two oblong cairns at the northern foot of the North Hill of Bellary, are reported to have "crude stones arranged in oblong fashion" (Subba Rao ; 1949 : p. 167).

2. *Stone Circles*

None of the stone circles noticed by Subba Rao "showed any outward trace of cists" (1949 : p. 74). The one in the field of Bramappa north of Sanganakallu, was (5.40) in dia.

During my exploration of Sanganakallu at the time of the 1964 excavations, I found four stone circles ; probably some of those previously noticed in the plains at the foot of the Kupgal hill. These megaliths did not have either cairn packing or surface indications of cists, if any, within.

3. *Menhirs*

The three menhirs (Subba Rao, 1948 : Pl. II) are separately found in different spots of the fields ; one to the north of the Saudamma Hill and two to the south. They are too few and isolated from one another to know the pattern of the plan of their erections.

The stones are rough, undressed and roughly square, range in height from (1.5 m) to (3.10 m) and (60 cm) to (75 cm) square. One of the menhirs had four stones on the four sides.

1. I was in the excavation camp for a short period. Information was kindly given by Dr. H.D. Sankalia. I am extremely thankful to him.

Megaliths in Hire Benkal Area

West and north of Sanganakallu, a few sites particularly with dolmens, are reported to have been found at Rayapuram, Sandur, Halasargaum (Taylor, 1941 : p. 86), Rajawalam (Taylor) and other sites nearby (the list of the sites below: Nos.75-84 Hampasagar (Foote ; 1916 : 127-128) and Hire Benkal (Taylor ; 1941 : pp. 57-60, and ARADH ; 1935-36 ; pp. 28-31), and other sites (the list of the sites below : Nos. 173-183), nearby and Koppal (Allchin ; 1955 : p. 66). In most of these sites cairn stone circles and port-holed chambers and dolmens are reported to have been found. Hire Benkal contains numerically the largest number of megaliths of these types. Further beyond Hire Benkal-Koppal no sites with dolmens, port-holed dolmenoid cists particularly, are found. Thus all the sites mentioned above, seem to form, more or less, the western and the northern periphery of a large cultural nucleus covering Sanganakallu, Brahmagiri and the adjacent sites mentioned above. In this peripheral zone, Hire Benkal appears to be the type site, and, therefore, studied in detail below.

About nine localities are so far known to have megaliths, situated, within a stretch of about 35 km in the Gangawati Koppal hilly areas. In order to understand the density of the megaliths and their relative geographical positions with reference to Hire Benkal, is given below a statistical list of the sites.

TABLE

No.	*Locality*	*Direction and distance from Hire Benkal*	*Types*	*Approximate number.*
1.	Mallapura	6 km south-east of	Dolmens	20
2.	Anegondi	15 km	Stone circles	20
3.	Shivapura	20 km South-west of	Stone circles cist circles	200
4.	Bilebhavi	20 km west-south west of	1) cist circles 2) Polygonal chamber	10 25
5.	Koppal	35 km west of	Dolmens and dolmenoid cists	20
6.	Chik Benkal	3 km west of	Dolmens etc.	10
7.	Indurgi	12 km west-north-west	,,	70
8.	Agoli	6 km north-northwest of	,,	50
9.	Bandarahala	3 km north of		20
10.	Guddi	4 km ,, ,,		15

The Megalithic Site at Hire Benkal

Keis (Taylor 1941 : pp. 55-62) was the first to notice the large megalithic site in Hire Benkal in the midst of the hills and Taylor (1941 : pp. 55-62) reported about it. Subsequently, Munn(1934 : pp. 123-4) also wrote about them along with his discoveries of three rock paintings nearby in 1935.

The part of the hill with the megalithic site on one of its saddles, lies 3 km south-southwest of Hire Benkal and equidistantly south-east of Chick Benkal. Both the localities are on the highway between Gangawati and Koppal.

The megalithic site is locally known as Moriyar Gudda. About 3 km south-east of this site is said to be another site called Maleyammana Octy and yet another to the north-west of Chik Benkal about 5 km away. Also, at the foot of the hill on the southern side of the village are disturbed stone circles. Within a km north-north-east of Hire Benkal, in the plain fields at the foot of the hill, is the remnant of an ash mound discovered by Munn (1934) and cairn stone circles. Up-to-date ten rock paintings out of which seven are discovered by me, are known. Of these rock paintings three seem to have some bearing on the megalithic culture and will be dealt with in detail in Chapter VIII. In one of the ravines of the hills, locally called Talavarana mule is an early historical site with russet coated white painted red-ware pottery etc.

In 1965, during my visit to the site, I discovered a megalithic habitation site about 0.50 km north of the cemetery, on the highest part of the hill, locally known as Durgad Dadi.

Allchin (1956: p.99) reported that there were about 440 megaliths on the hills and in the plains from the northern foot of the hill in Chik Benkal and Hire Benkal areas. Also, broadly but in a too general way, he classified them into four groups.

1. Some similar to the types excavated at Brahmagiri.
2. Some similar to Savanadurga (Near Bangalore).
3. Some similar to the types found in north Gulbarga.
4. Some similar to the types peculiar to Raichur.

The megaliths on the hills are situated at three different places, spread in an east-west direction, together to a distance of about a km the distance in between each other being roughly 200 m surrouded by barriers of granite-gneiss outcrops. The site is about 3 km south-southeast of Hire Benkal. Natural vegetation, relieve, to some extent, the monotony of the rugged rocks appearing in massive-ridges and boulders of grotesque forms isolated and in heaps, on the one hand and of the rude megaliths on other.

For the sake of convenience of the study the megaliths in the three places are called: the Western group ; the Central group and the Eastern group.

Megaliths of the Western Group

There are about 100 megaliths in this group scattered within an area of 200 m x 200 m and resolve into four types :

	Approximately
1. Port-holed dolmenoid cist-circles	25

		Approximately
2.	Oblong dolmenoid cists or cists	10
3.	Irregular polygonal chambers	43
4.	Rock-shelter chambers	15

1. *Port-holed dolmenoid cist-circles* : This type is almost exactly similar to the cist-circles of Brahmagiri (Wheeler ; 1948 : pp. 187-194), with but one difference that the chamber is partly buried (Pl. XXII, 2,3).

It is a rectangular chamber of about 1.80 m to 2 m square formed by four monolithic orthostats, each about 2 m to 2.50 m l, 1 m b and 12 cm to 15 cm set up so that one of the edges of the adjacent orthostats, projectsl aterally across the edge of the adjacent orthostat and is either clockwise or contra-clockwise on plan. The orthostats are partly driven into the ground to some depth. The chamber is covered on the top with a capstone of rather irregular shape or roughly rectangular usually thicker than the orthostats and longer than the area of the chamber.

Usually, in the middle of the eastern orthostat is a circular hole of about 45 cm to 50 cm in dia appearing immediately above the ground. This hole, externally closed with a thin rectangular stone slab, is approached by a short passage of about 90 cm l formed by two flanking vertical slabs set up 90 cm apart and almost touching the orthostat.

The chamber is externally surrounded by a coursed dry cairn of rubble stones the remnants of which are extant in a few megaliths. This coursed cairn is surrounded by a circle. about 4 m to 5.50 m in dia, formed with vertical slabs of about 60 cm to 70 cm h from above the ground, fixed close to each other.

The circle of almost all the megaliths of this type has been destroyed. All the chambers have been robbed of their contents by mostly treasure-hunter in course of time.

There is a general uniformity more or less in the dimensions of these megaliths. Tombs of contra-clockwise plan are considerably more than of the clockwise, a feature noticed by Wheeler (1948 : p. 187) at Brahmagiri also.

The architecture of this tomb-type, and in measurements too is essentially similar to that of the cist-circle (particularly, Pl. LXXIX, B) of Brahmagiri. However, circles of the tombs formed by undressed field boulders are not found in the extant remains here. Secondly, the circle is at a lower level of the chamber. This feature is due to the level of the chamber in the ground. In Brahmagiri the chamber is almost subterranean and here the major part of the chamber is above the ground.

2. *Oblong dolmenoid cists or cists* : This type in large numbers and with some noteworthy features occurs in the central and eastern groups and, therefore, will be described under those groups. It is, therefore, sufficient to note here, that in this group megaliths of this type, some divided into two compartments occur.

3. *Irregularly polygonal chambers* : (Pl. XXIV ; 1,2,4) : This peculiar type occurs in considerably large numbers in this group and also in Bilebhavi.

Mostly, raised on the bare rock, they are roughly rectangular or circular or irregularly polygonal on plan, not conforming to any general standards of dimensions or uniform plans. They are invariably of low height, about 40 cm to 90 cm on an

average. The chamber is formed by raising coursed walls sometimes with small gaps at irregular spaces or with field boulders alternatively, covered with a large capstone of irregular and uneven thickness and shape, on the top. Generally, it is open on a side looking in any direction. The opening differs in dimensions in every case. One of the biggest, would measure about 1.70 m 1 x 6o cm b x 40-60 cm h.

4. *Rock-shelter chambers* (Pl. XXIV ; 3) : This type, again, is peculiar to this site and is considerably large in number in this group. A rock-shelter or cave is converted into a closed chamber by raising coursed rubble walls on the open sides, but leaving a gap at some point for entrance. Each rock-shelter is unique in plan and area: The chamber formed in it has obviously no standard plan.

II & III : Megaliths of the Central and Eastern Groups

In these groups are respectively about 150 and 60 megaliths. Their typological analysis is given below :

TABLE

Groups	Dolmens with or without port-hole.	Oblong cists with or without port-hole	Irregular polygonal chambers	Rockshelter chambers
Central group	80	30	5	8
Eastern group	17	45	2	3

Note : The numbers are approximate

From the above table it is evident that the dolmens are predominant in the Central group and the oblong cists or cists, in the Eastern group. As far as possible each type does not encroach into the area of the other : there is a clear segregation in the distribution of these types.

The sites of the two groups are about 300 m x 100 m and 80 m x 50 m respectively in area. The former is thickly scattered with stone rubbles. The tombs are close to one another (Pl. XX ; 1).

On the southern side of the Central group, there is a tank that evidently must have been caused owing to the quarrying of slabs for the nearby megaliths. A bund is raised on its southern side.

1. Dolmens with or without Port-hole

This type is roughly a square or oblong (Pl. XX ; 2-3) chamber raised from the ground and formed by four orthostats interlocked in the same way as that of the port-holed dolmenoid cists of the Western group. The chamber carries a roughly dressed capstone, ovalish or circular or rectangular, larger than the chamber, on the top and has a monolithic slab for the floor. In one of the orthostats, there may be a port-hole in the middle or at the bottom. The port-hole may be either circular in the middle or semi-circular on the right or left side, or bottom edge looking east or south, north or west. However, the port-hole facing east is rather frequent.

A dolmen has externally two upright slabs close to one of the orthostats, probably part of a wall, enclosing the chamber. One of the slabs has semi-circular top edge. There is no cairn of stone rubbles, coursed or otherwise, covering externally the chamber. There are scattered thickly fragmentary stone slabs near all the dolmens and in the surrounding areas. From the rough dressing of the capstones so as to support vertical slabs of the enclosing walls, if there be, and from the thickly scattered stone slabs near many of the dolmens, it appears that the dolmens were originally surrounded on all sides by a wall of upright slabs that rest against the capstones. These enclosing walls must have been broken by treasure-hunters in course of time.

Occasionally, a dolmen may be surrounded by a fence of coursed rubble wall about 1 m (Pl. XXII ; 1). A dolmen, if it is elongated, is either east-west or north-south oriented. A noteworthy feature about the dolmens is the striking variation in size. A small dolmen would measure 1.30 m l, 100 m b and 1.15 m h and a big dolmen, 2.10 m l, 1.80 m h and 2.20 m h i.e. nearly double of the small one.

Dolmens of the above type do not occur in the western group. But, away from this group near the rock-painting No. 1 are a dolmen and an oblong cist. This dolmen has a semi-circular port-hole on the right edge of the eastern orthostat.

Dolmens with closed port-hole : In the Eastern group, the port-hole of the dolmen is closed with a slab generally as big as (Pl. XXI ; 1), or, occasionally, even bigger (Pl. XXI ; 2), than the orthostat containing the port-hole. In one instance, it is noteworthy that the orthostat with the port-hole closed with a slab has another semi-circular port-hole at the top left corner (Pl. XXI ; 1) obviously suggesting that it had the semi-circular port-hole already before it was used as orthostat. The tall slab closing the port-hole of another dolmen is like an inverted capital 'L' the corner being rounded off, rising about 60 cm, further above the capstone. One of the dolmens of this type has an enclosing wall of slabs in upright positions (Pl. XXI ; 2, 3). The uprights are so close to one another that no space is left in between them. They lean against the edge of the capstone. The slab closing the port-hole forms part of the enclosing wall.

There are about six dolmens of this type in the eastern group. Generally, these dolmens are not very high, and broadly uniform in the dimensions. Examples of this type are not found in the Central and Western groups.

2. *Oblong Dolmenoid Cists or Cists* : (Pl. XIII ; 1)

This type is quite simple : the chamber is formed by four monolithic slabs in upright positions and mostly oblong on plan ; but unlike the port-holed dolmen or dolmenoid cist, neither clockwise nor contra-clockwise. Usually, either one or both the orthostats on the shorter sides stretch out laterally across the end respectively of the adjacent orthostats on the longer sides.

The chamber is either almost completely or partly sunk in the ground. Accordingly, it is either a cist or dolmenoid cist. It is covered on the top with a slab usually rectangular, larger in area than the chamber and thus projects laterally on all sides. The capstones of most of them are missing.

Very rarely the plan of the chamber is either clockwise (Pl. XXIII; 2) or contra-clockwise. Out of 75 megaliths of this type in the Eastern and Central groups, there

are three or four of either clockwise or contra-clockwise on plan.

Although the cist or dolmenoid cist is very commonly single chambered, there are some having one or more longitudinal partition slabs within dividing the chamber into two or three (Pl. XXIII ; 3, 4) and sometimes as many as six sub-chambers. However, it appears all the sub-chambers are covered but with one capstone. A chamber divided into three sub-chambers has one capstone covering all the sub-chambers.

A chamber divided into two sub-chambers is comparatively more frequent than that with more than two sub-chambers.

Excepting one, no port-hole is present in any of the visible portions of the orthostats of the remaining cists or dolmenoid cists. The lonely specimen is divided into two sub-chambers. In the eastern orthostat are two port-holes one for each sub-chamber (Pl. XXIII ; 3). The one on the left is closed with rectangular slab.

Generally, megaliths of this type are not large sized. One of the biggest and the smallest would respectively measure : 1.50 m x 0.60 m and 0.90 cm x 0.60 cm w.

Also, they are roughly either east-west or north-south oriented.

Megaliths at the Foot of the Hills : Cairn Stone Circles

Near the fringes of the two valleys locally known as Talavārana Mūle and Myādar Baṇḍe in the northern slopes of the hill range, in the cultivated fields were four cairn stone-circles. At the foot of the granite outcrop with dolerite dyke to the north-east of the village and near the ash mound are about 12 cairn stone circles. Stones of the circles are, as usual, undressed field boulders of granite-gneiss. Within the circle is the cairn of stone rubbles of white or brownish quartz, dolerite and granite-gneiss, gradually raising from the circle towards the centre.

The cairn stone circles externally measure from 3 m to 8 m.

There are no surface indications whether any of these are cist-circles. Some of these, which are disturbed, evidently are pit-circles.

Near the Talavarana Mule a disturbed pit-circle is found. The enclosing circle and the cairn are completely disturbed. From the devastated pit a few potsherds including some rim sherds of the black-and-red ware tulip shaped bowl and of red ware vases, were collected. They will be referred to below.

Megaliths in Mallapur and Koppal

I examined the sites at Mallapur and Koppal which form respectively the south-eastern and western extremities of the sites of Hire Benkal group.

Mallapur is about 10 km south-east of Hire Benkal and on the way to Anegondi. The megalithic site, about 1.50 km north-west of the village, on one of the saddles of the granite-gneiss hill range in which the sites of Hire Benkal are situated, locally known as, Saṇṇa Moriyar Taṭṭe.

There are about 20 megaliths in various states of dilapidation. There is only one dolmen intact, with a semi-circular port-hole on the edge of the northern orthostat; contra-clockwise on plan, about 1.90 m l x 1.20 m b x 1.30 m h oriented in the north-west-south-east direction. It is similar to the dolmen with or without port-hole type of Hire Benkal. Another dolmen had encircling coursed wall of low height, a

feature already noticed in Hire Benkal. This encircling wall is described by the local people as 'tatte', (meaning platé) and the site with the dolmens enclosed in the circular wall is, therefore, called Sanna Moriyar Tatte (plates of the dwarf Moriyars).

Koppal, about 30 km west of Hire Benkal, is well known for its Minor rock edict I of Asoka and an early historical site. During my visit to the site I discovered a neolithic site. Little away from the edict near Pālki Guṇḍu towards the Male Mallapur Temple.

About 1.50 km west-north-west of the town, on flat summit of a hill are the remains of about 20 megaliths of two types: the dolmen and the oblong dolmenoid cist. An orthostat of a disturbed dolmen in its original upright position has a circular port-hole, 35 cm x 40 cm in dia looking north-east.

From the present state of their existences in these two sites, no more details than what is stated above, can be had.

Megaliths in Belhatti-Devihal Area

About 42 km further south-west of Koppal is another series of twelve sites (list of the sites, above : in the Koppat Guḍḍa, range of the Gadag belt of the Dharwars and the granite-gneiss. In this range are found ancient gold-working pits and iron smelting sites.

The types of the megaliths in these sites are cairn stone circle and round barrows. Besides, there is only one small dolmen at Bellatti, the type of which is difficult to determine owing to its dilapidated state of existence.

III. The Manvi Group

Near Manvi, a taluka headquarters (Dist. Raichur), is another group of megaliths situated in the midst of several thinly wooded granite-gneiss outcrops near the left bank of the Tungabhadra river. As many as thirteen localities (list of the sites, below Nos. 161-173) within a stretch of about 30 kms, were previously found to have megalithic remains by the Department of Archaeology (ARADH; 1933-34 : p. 7) and subsequently by the Geological Survey (JHGS; 1936: pp. 76-82) of the former Hyderabad State. This is the biggest known group in the eastern part of the area.

I visited three of the localities : Rajalabanda, Gorkal and Kardigudda (Hardigudda as mentioned in the above reports).

Types of Megaliths

The megaliths reported from these localities are of two types : cairn stone circle and dolmens(?).

1. Cairn Stone Circles

In Rajalabanda and Jukur big groups of cairn stone circles were reported to have been found. But during my visit to study these sites, I did not come across any cairn stone circles. The local people too did not know if there were any such remains in their localities. However, I could notice a neolithic site with neolithic grey ware pottery of Maski fabric etc., remains of an ash mound and megalithic cultural remains as well, including typical, polished, megalithic black-and-red ware etc., about 4 km north of the locality on and at the foot of a granite-gneiss out-crop, locally known as Aneguḍḍa (elephant hill). About 700 m west of Gorkal, a locality about 6 km north

of Rajalabanda, I noticed another similar site with neolithic cultural remains including remnants of an ash mound and megalithic habitational remains at the foot of a granite-gneiss hill locally called Koṭeguṇḍu and a few megalithic graves exposed in the sections of a deeply cut cart track between Gorkal and Sunkeshwar passing beside the site.

The Megalithic Burials in Gorkal

The megalithic burials exposed in the sections are a few crushed pottery vessels of the megalithic red ware, the black-and-red ware are partly jetting out. One of these burials was examined (Pl. XVII; 2). There are two small and two big vessels of red ware; a black-and-red ware funnel shaped lid and a very coarse thick sectioned dull grey trough. No bones or iron objects were got from it; after all, it was previously a disturbed burial.

From this and the other burials exposed in the section, it is evident that the burial pits originally did not have any cist and were, therefore, pit burials comparable to the pit circles of Brahmagiri. Now, they do not have any surface indications such as stone circles etc. and the fields in which these burials are found are under cultivation. Perhaps, the surface indications, if there were any, must have been removed when the lands were brought under cultivation.

The local people informed me that there were some stone circles near the habitation sites at the foot of the hill. One of them was previously opened. At some depth were found a large stone slab lying flat and a little further below, some pots. I noticed a semi-circle of granite-gneiss field boulders; probably a disturbed cairn stone circle at the foot of the hill.

It appears, therefore, that the stone circles of this area are of the B(v) type of Maski (Thapar : 1957 ; p. 33) and of the pit circle type of Brahmagiri.

2. *Dolmens* (?)

Near a hillock to the south-southeast of Kardigudda (Hardigudda), were found a number of dislodged rectangular slabs of dolmens (?) (JHGS ; 1936 : pp. 76-82). I could note, here, a few menhirs only and on the terraces of a hill beside the locality about 2 km further north-northwest from the reported site, a neolithic site with megalithic remains as well.

The menhirs are too few to know their plan and alignments.

IV. The Maski Group

Further, about 40 km westwards from the Manvi group, is another big and important group of some sites of which Maski is well known. The other sites are : Timapur, Kurkundi, Watgal, Venkatapur and Matbal.

Some of these sites are well known since Bruce Foote (1914 : pp. 123-126) and especially Maski for the minor rock edict of Asoka.

Types of Megaliths

The surface explorations in Maski and the nearby localities had brought to light two types of megaliths :

1. Cairn stone circles.
2. Stone alignments.

1. Cairn Stone Circles

In Venkatapur are about 45 cairn stone circles (ARADH ; 1936-37 : p. 8). Some of these megaliths are in pairs perhaps a feature noticed only here. In another group of the cairn stone circles, the megaliths are double stone circles. In Watgal also there were double stone circles (Munn ; 1934 a : pp. 121-135). I visited this site and I could notice only one double stone circle (Pl. XXVI ; 1) measuring enternally 8 m and 9.70 m. In Maski, too, were two groups of cairn stone circles, about 3 km west of the Asokan edict (ARADH ; 1936-37 : p. 8). In these groups, were double stone circles, the outer circles in some cases being about 15 m in dia.

The extensive ancient site at Maski was excavated by the department of Archaeology of the old Hyderabad State (ARADH ; 1935-36 : pp. 19-31 ; 1936-37 ; pp. 14-16) and later on by the Archaeological Survey of India (Thapar ; 1957).

The former had brought to light an extensive cemetery showing one extended burial and many pot burials, (Gordon, D.H. ; 1960 : p. 190 and pl. XXXI a and b) and also flexed burials and cylindrical sarcophaguses. Unfortunately, details regarding the chronology and characteristics of these burials are not available.

The excavations by the Archaeological Survey of India, revealed five types of megalithic burials with some new features :

(i) The occurrence of burials in the habitation area itself.

(ii) The inhumation of the complete skeleton in an extended position.

(iii) The north-south orientation of the major axis of the grave-pits, as opposed to the east-west at Brahmagiri indicated there by the port-hole in the case of cist-circles and the non-functional door-slab backed by a short shallow ramp in the case of pit-circles, and

(iv) The use of lime or ash on the pit-floor, possibly, as a preservative for the skeletal remains.

The dates about the burials of the five types are very well described and excellently illustrated (Thapar : 1957 : pp. 27-33, Pls. VIII-XVI and Figs 5-7). Besides, two menhirs were also excavated (pp. 35-36 ; Pl. XV-XVI and Fig. 8).

Regarding the structural details of these types all of them were pit-burials but with some variations as follows :

Burial (i) : An elliptical pit cut in the ground with the major axis in the north-south direction.

Burial (ii) : An elliptical pit with the major axis in the east-west direction.
Burial (iii) : A cyclindrical pit.

The above three types do not have any lithic appendage on the top.

Burial (iv) : An oblong pit with the larger axis in the north-south direction. On the top the burial is demarcated by a circle of unhewn stone boulders enclosing a mass of rubble packing.

Burial (v) : A rectangular pit with the longer axis in the east-west direction, demarcated on the top by a cairn stone circle.

Thus, in Maski area there are two types of burials :

1. Pit-burials without lithic appendage.
2. Pit-burials with lithic appendage i.e., cairn stone-circles without cist.

So far, cairn stone circles with cist or dolmenoid cist have not come to light in this area. Mostly, therefore, the single or double stone circles of this group may be of the pit-burials with lithic appendage type.

V. The Shahapur Group

Further north of Maski and Watgal in the northern part of the granite-gneiss zone forming the south-eastern part of Dist. Gulbarga, along the Krishna and to her north, are many megalithic sites with stone circles and stone alignments (list of the sites below: Nos. 124-127, 195-202). Of them, I visited Tinthni, Rachanhalli, Hanmasagar and Shahapur. But I could not find even one stone circle of the many reported earlier, in the first two localities. All the surface indications must have been thoroughly removed in the course of time when the lands in which the megaliths were situated were brought under cultivation. In Shahapur area, I discovered three megalithic habitation sites at Tadbidi, Vibhutihalli and Rakhamgiri and a site with stone circles with or without cairn packing at Mandapur and studied the stone alignments at Vibhutihalli, Shahapur and Hanamasagar.

About 4 km south of Shahapur is Vibhutihalli at the foot of the Shahapur hill range and on the Shahapur-Shorapur Road. In between Shahapur and Vibhutihalli are Rakhamageri beside the main road and about 1.50 km from the former and Mandapur on the top of the hills near Rakhamgeri. Shahapur is about 5 km west-northwest of Shahapur. In all these localities are megalithic remains. They are as follows :

i. Vibhutihalli. A megalithic habitation site. A well-preserved stone alignment.
ii. Rakhamageri. A megalithic habitation site. Remains of a stone alignment.
iii. Mandapur. Stone circles and stone rectangles (megalithic ?)
iv. Shakapur. A stone alignment.
v. Tadbidi. A megalithic habitation site.

The Shahapur area is traversed by extensive ranges of bouldery hills bare of trees, called Shahapur hills running in north-south and also east-west directions forming, here and there, many deep valleys. About 6 m east of Shahapur, runs the river Bhima south-eastwards. The soil is generally, greyish brown sandy earth.

The Megalithic Sites

The stone alignment and the megalithic habitation sites of the first locality are separated by the main road and are opposite to each other and within a distance of about 500 m. The two sites in the second locality are within an area of about ten acres and about 1.50 km from the first locality. The stone alignment in the third locality partly encroaches into a neolithic site there and is to the north of the Shahapur hill range and near Shahapur. Tadbidi is about 10 km east of Shahapur. Thus all these sites are within small distances and form a nucleus of the megalithic culture.

Taylor (pp. 31-42) was the first to record the stone alignments in the first two and the fourth localities and the ancient site (i.e., the neolithic site in which the stone alignment is partly found) in the fourth. He also gave a brief account about the stone circles found in the plain fields in between Vibhutihalli and Shahapur. These stone circles are not now found. Later, the Department of Archaeology of the old Hyderabad State, noted the stone alignments and the site in Shakapur (ARADH ; 1940-41 : p. 8). Allchin in his study of the stone alignments (1956 : pp. 133-136) in the Deccan, has dealt with those of the above localities also.

With these preliminary remarks the megalithic burials are described below.

Types of Megaliths

There are two types of megaliths in the above sites:

1. Cairn stone circles.
2. Stone alignments.

1. Cairn Stone Circles

Taylor reported 28 cairn stone circles in the cultivated fields to the north of Vibhutihalli with an illustration (Pl. XVI). But none of them is now found there. His account is, therefore, the only guide to know about them.

The cairn stone circles are both large and small. One has three concentric circles ; two have double circles and the remaining are single circles. Four of them are surrounded by what looks like an enclosure in ruins.

At Rakhamgeri, Taylor noticed "a rather remarkable barrow" or "tumulus" and cairns, in the fields in which ran the road from Shahapur to Saggi (i.e. Gogi). The barrow was excavated but not completely owing to the extreme compactness of the debris. There were four stone circles on it ; one being treble and the other single circle. The remaining two were double circles.

Besides, there were two groups of cairn stone circles, eight in one to the north-west and two in the other to the south-west of the barrow in the same field.

About 1.50 km from the above, in a valley where the road from Shahapur to Saggi turns, near a small rivulet, was a huge rock boulder, about 6 m h and 7 to 9 m in dia. round and irregular in form. This boulder was surrounded by a double circle of large stones, *with two large rocks as entrance on the south side* (Taylor : p. 34). On his subsequent visit, Taylor found the circle already destroyed by the Vaddars engaged to repair the tank. I did not find any trace of this megalith during my visit.

2. Stone Alignment

About 20 m north of the village, nearby the Shahapur road, on the left, is the well-known stone alignment (Pl. XXVIII). On a level plain field, in an area of 225 m x 200 m (E-W) there are, roughly equidistant and parallel rows of stone boulders. The rows are 34 on the north-south side and 37 on the east-west. The boulders appear in parallel rows even from the corner. Thus, the diagonal effect is achieved. In the arrangement of the stones, there is a mathematical precision. The distance between two stones in each row on an average is from 8 m to 11 m.

At the north-western corner of the alignment some stones are missing.

The boulders are undressed, medium-sized and measure from 1.60 m in girth and 1.40 m to 2.01 m in girth and 0.30 m h.

Most of the boulders are not driven into the ground but just placed on the surface.

Taylor's illustration of this alignment shows clearly five stone circles within the alignment. Two of them are double circles and three single circles. He writes : "I assume that the squares marked out must have been for cairns as there are five".

Taylor further noticed a small stone alignment near the hills, about 300 m from the barrow mentioned above. Similar to that of Vibhutihalli but with many menhirs missing and with two cairns. I found a few menhirs in alignment in the southern edge of the tank, near the bund.

In Shakapur, Taylor (p. 36) noticed a stone alignment in association with an ancient mound which he described as "tumulus" about 2 km north of Shahapur hills. I found the mound to be a neolithic habitation site. He gave a vivid account of how the alignment was actually situated near and on the mound. His account is important as it can give some idea about the relative chronology of the alignment. Now the mound is completely exposed and reduced and the alignment is disturbed, in as much as the alignment and the site stand apparently separated. Hence, Taylor's account is summarised below.

The mound was enclosed by rectangle, 120 m x 78 m consisting of 56 huge granite boulders. Some space was left between the edge of the mound and the rectangle all around and more so on the western side. Again, the edge of the mound is held by a smaller rectangle 57 m x 48 m consisting of two rows on three sides and six on the eastern side. The rows were of closely juxtaposed granite field boulders. The mound was about 3 m high at the centre from the ground level. On the summit of the tumulus was a stone circle 18 m in dia, the interior being plain and even. Between the circle and the rectangle at the edge, the surface was completely covered with large black rocks or green stone, without any regular design. The imperfect circle was 18 m (S-E) and 12 m (N-W). On the south-western and north-eastern corners were two small circles of green stones.

Some of the largest boulders of the outermost rectangle were from 1.20 m to 2.50 m h from the ground level and from 6 m to 8 m in girth ; the smallest would measure 1.80 m l, 1.60 m b and 1.10 m h. Those on the slopes of the mounds were from 1.20 m to 1.60 m l, 0.60 m to 0.90 m b and of irregular round form.

Taylor (p. 41) had two trenches 1.80 m h each, laid along the principal axis of the mound. Pieces of broken pottery bones, charcoal bits and slaggy lumps were got and a succession of five to six layers was recognised. At the crossing of the trenches, the depth was about 2.70 m.

Taylor, in view of the occurrences of the ashy earth of the layers and bones, inferred that the tumulus was due to *successive cremations in great numbers and after each burning, the spot had been covered over with soft greyish earth.* It was the spot

where all the dead of the tribe were burnt. Their ashes were collected in part and removed to be buried in the cairn stone circle. When the site was to be deserted the mound so formed was covered with stones and enclosed as described above, as shown in illustrations (Pl. XIV and XV) by Taylor.

Now, coming to the present state of the evidence actually, no such stone enclosure and a mound covered with stone boulders had come to my notice during my explorations. It may be noted here that the exact location of the mound with reference to Shahapur, is not given. However, there is a neolithic site, with a stone alignment, reported and now protected by the Department of Archaeology, Government of Karnataka, about 5 km west of Shahapur and as mentioned by Taylor 2 km north of the Shahapur hills near which the road from Shahapur takes a northerly turn for Jewargi. From this point another road goes westwards to Gogi. Again as observed by Taylor, a few metres north of the site is a temple in a habitation site of medieval period. And, in between the above site and the hills south of it are as mentioned by him nullahs. It appears from these topographical features, therefore, that the mound so vividly described by Taylor is none other than the neolithic site with the stone alignment. The site bearing revenue survey No. 18 is now actually within the revenue limits of Shahapur. But now, there is neither rectangular stone enclosures nor covering of the stone boulders on the surface of the mound, nor the mound is as high as reported by Taylor. Surely, he being a careful observer and actually well acquainted with stone alignments at Vibhutihalli etc., would not fail to recognise a similar stone alignment here. And his description of the stone rows on the edge of the mound like that of Vibhutihalli is the same as the present stone alignment.

The neolithic site including the stone alignment now measures 165 m (E-W)x 145 m (N-S) and excluding the latter 75 m (E-W) x 140 m (N-S). The latter is on the eastern side of the former. The northern part of the site is actually cut by the modern road to Gogi and a menhir on the north-eastern corner actually lies on the other side of the road. On the other sides of the site are cultivated fields. The land is, as observed by Taylor, sloping southwards.

The neolithic site is slightly elevated and is about 1 m h from the southern side, whereas on the north it is almost even with the present level of the ground. The earth is externally ashy. Near the south-western part on the surface are a few boulders of probably dolerite dyke that roughly form a slightly elongated circle, of 1.60 m dia. The stones are not close to one another ; probably those are the survivals of the boulders that once covered the entire mound.

Plenty of pottery chiefly of the neolithic grey ware of Maski fabric, is found on the surface and also bones in the sections exposed on the roadside. Separately fragments of neolithic tools and chert flakes are scattered on the surface. Besides, coarse red ware pottery of perhaps late historical period, also occurs very moderately. The types such as platters, bowls, urns, vases, disk-on-stand and their fabric, are closely akin to that of Maski Period I.

On the western side of the site is the stone alignment.

There are in all 16 menhirs arranged in eleven rows in the east-west direction. The number of stones in each of the rows range from 1 to 6 spaced at an average

interval of 3 m to 15 m in parallel line producing diagonal effect, like the one at Vibhutihalli. Obviously, some of the menhirs are destroyed. In fact, some are fallen flat on the ground ; some partly and freshly broken. Much destruction must have been wrought when the road was being laid through the site. The menhirs, unlike those of Vibhutihalli, are imposingly huge and undressed. Generally, they appear to have been driven partly into the ground and rammed well all round. They have roughly conical shape. One of the menhirs, fallen, has flat bottom. A large menhir on an average would measure 3 m x 2 m at the bottom, 2.60 m h and 6 m in girth and the biggest, 7.50 m h and from 2.50 m to 3.40 m in girth and roughly lenticular in section. Most of the menhirs are granite-gneiss boulders and two appear to be of dolerite.

Now, it is evident that what is now found is only a part of what Taylor described after much destruction. Owing to his excavations considerable portion of the surface of the mound (i.e., neolithic mound) was stripped of its cover of boulders and also of the stone circle on the top. The height of the mound was also reduced. In the course of time, the outer and inner rectangles, particularly on the north, west and south sides, must have been destroyed by the site diggers for their carts to move in and to carry the earth. But the menhirs on the eastern side were too numerous and huge to be destroyed in the same way. The sizes of the menhirs are more or less in conformity with those given by Taylor (p. 39). Finally, his excavations of the tumulus revealed that the accumulations were stratified and produced pottery, slaggy like lumps and bone fragments.

This stone alignment is by far the most important as it is the only site perhaps (at least in North Karnaṭaka) that actually encroaches into and immediately overlies a neolithic habitation site. Thus the relative position of the site is helpful to deduce the relative chronology of the menhirs. All other known stone alignments are in isolation of the any known cultural assemblies.

3. *A Stone Rectangle*

In the southern vicinity of Tadbidi, immediately to the left of Yadgir-Shorapur road, in the cultivated fields, is a stone rectangle 13 m square, oriented almost perfectly to the cardinal points. It is of single row of undressed stone boulders of granite on each side. Some boulders, here and there, especially on the southern side are missing. Whether this stone rectangle is megalithic, is uncertain. However, originally, it might have enclosed a megalithic stone circle in view of the fact that occasionally a megalithic stone circle may be enclosed in a stone rectangle. No megaliths were, however, encountered in this locality.

To sum up, in Shahapur area about 10 km x 10 km with Vibhutihalli, on the south and Daggi on the west, there were :

1. Single or double cairn stone circles in large number.
2. Four stone alignments.

The extent and the number of megaliths in this area made Taylor (p. 42) say there must have been a large encampment or settlement of these people about Shahapur. "I have looked, in vain, however, for any traces of ancient walls, or indications of habitation, if any, except one doubtful spot not far from the rock which had circles and stone round it and which shows some traces of old walls, as well as small pieces

of red glazed pottery." If any one of the megalithic habitation sites at Vibhutihalli and Rakhamgeri was hinted at by him cannot be known since the huge rock surrounded by circles that was already destroyed, could not be identified. Anyway, now these two sites would fulfil what Taylor wanted further to make definite his observations.

There are now three megalithic habitation sites noticed within an area of 10 km which will be referred to below.

Other Sites with Stone Alignments in the Shorapur-Shahapur Area

Shahapur Area

In the contact zone of the granite-gneiss and the sedimentary rocks of the Bhima series, there are eight more sites with stone alignment known so far (Allchin ; 1956: pp. 133-136). They are :

1. Hanamasagar.
2. Halabhavi.
3. Bachimatti.
4. Paramanand Hill.
5. Chikanhalli-Mangihal.
6. Mallur-Vitragal.
7. Rajankolur.
8. Hagaratgi.

Excepting the last two the menhirs of the alignments in all the other sites are of granite gneiss and rarely of trap dykes. And in the vicinity of the stone alignments, in most cases, there are stone circles. The menhirs are aligned. But as they are disturbed or too few in many of the sites the pattern of their plan is not evident.

Of these sites, and in fact in the whole North Karnataka, the stone alignment in Hanamasagar is the most extensive, about 720 m square in area, with about 1,000 menhirs of 1.50 m to 2 m h. The plan of the alignment is generally of the diagonal pattern.

All these sites are to the south-east of Vibhutihalli-Shakapur area.

VI. The Gajendragad Group

About 25 km west of Maski, there is a chain of megalithic sites spread to a distance of about 50 km from Gajendragad westwards, at irregular spaces in the localities : Gugalmari, Gajendragad, Hirehal, Kurugovinkop, Kittur and Kallur. In the neolithic site at Hole-Alur (Sundara; 1968), in between Hirehal and Kurugovinkop, a few pot-sherds of the megalithic black-and-red ware and the red ware, were collected.

Geologically, this is the tract of the land where the eastern-most extension of the sandstone hills of the Kaladgi series everlying the granite occur as outliers from Badami. These sedimentary rocks run in several ranges of hills in the east and south-east northwest directions. In Gajendragad area the horizontally bedded sandstone hills are so much crackled on the surface that convenient slabs for building megalithic chambers in large numbers, are not readily available. The flat areas of these hills have a thin cover of red sandy earth supporting scanty vegetation. At the periphery of these hills are exposed the granite-gneiss rock wherever the overlying younger rock is

worn out, in the form of boulders as if heaped up against the steep sides of the hills. The western extension of these hills along Badami run north of about a km to 12 km away from the other localities excepting Gugalmari. The Malaprabha river runs eastwards draining the region of Badami in between some of these localities and the hills. The localities were situated in the plains of the black cotton soil on the banks of the tributaries to the Malaprabha. The Gugalmari area, about 30 km north-east of Gajendragad is of granite-gneiss and has many hills, thinly wooded.

With these general remarks on the local environment, the megaliths are studied below.

Pit Burials in Gajendragad Area

Gajendragad is at the foot of a long chain of sandstone hills running northwest southeast from Badami. About 1 km east of Gajendragad, is Gaudgeri at the foot of an oval shaped small hill locally known as Somēśvara Guḍḍa, isolated by a narrow pass from the Gajendragad hill range. Within a km south of Gajendragad is another locality, Unechgeri, the plain country. About 2 km to 3 km north-west in the valley of the hill and about 4 km west of Gajendragad are respectively two localities: Kalakaleswars and Rajur. Actually, the revenue limits of all these villages are upto the Gajendragad hill.

The megalithic graves exist along the western foot of the Someshwara Hill (Pl. XXV; 1) and along the foot of the Gajendragad Hill in the revenue limits of the other villages nearby.

Along the western foot of the Somēśvara Hill is a small channel cut by a local man to divert the course of the rain water that would otherwise wash out the fields under cultivation. This digging of the channel has, by chance, been done over and along a series of megalithic graves, about 25 in number, that are, therefore, exposed in the sections (Pl. XXV; 4). Also in some rain gullies some graves are exposed owing to the erosive action of the rain water. Likewise, on the western periphery of the Gajendragad Hill there are about 30 disturbed burials exposed in the rain gullies and in the pits dug by the local stone-cutters.

There are no surface indications of these graves in the form of distinct barrows or stone circles etc. Besides, there is only one stone circle partly disturbed in the plain fields on the eastern side of the Somēśvara Hill and 40 m east of the exposed megaliths. The stone circle is about 4.30 m to 4.50 m in dia. internally. The stones of the circle on the western side are missing. The stones are either roughly dressed or undressed and of sandstone. Again, on the northern side of the hill, near the village Gaudageri, are two disturbed stone circles. In view of these scattered remains of the stone circles. It appears that some of the megalithic graves exposed in the sections perhaps had originally stone circles on the surface that were in the course of time removed. Some of the megaliths are situated beside isolated huge boulders or on the rather steep slope of the hills. In the case of many graves, the spaces in between each two adjacent burials, each, ranging from 1.35 m to 4.50 m are too small for the existence of stone circles. It is doubtful, therefore, if such megaliths had originally stone circles at all. Finally, none of the exposed megaliths does have undoubtebly slab cist. In some of them thin cairn packing of the stone rubbles in the upper part of the

graves is still extant. Thus from these available evidences it can be surmised that there are two types of megaliths in this site : the pit-circle and the pit-burials.

Among the disturbed burials, one (Pl. XXV: 2) was completely examined and human skeletal remains including a skull, the burial furniture comprising pottery and iron objects, therefore, were collected. Also, a fragmentary skull from each of the two other disturbed burials and pottery from these and from others were collected. The burial furniture will be described below.

The Megalithic Types

The megaliths exposed are in both sections of the roughly north-south oriented channels. The special interval in between two adjacent megaliths each from the southern end, ranging from 1.30 m to 4.50 m through 2.20 m, 2.70 m, 3.25 m, 3.55 m etc., is usually small.

A rectangular pit on an average measuring 1 m to 1.25 m l x 0.80 m to 1 m w x 1 m to 2 m deep, is cut in the red murram of the slopes of the hills. The pit usually has its walls almost vertical but, occasionally, is preceptibly wider at the top or bottom. The floor of the pit is rarely paved with stone chips or small undressed slabs of sandstone or granite. On the bare or paved floor of the pit a big red ware vase, without wide mouth and oval shaped globular body, measuring on an average 60 cm to 80 cm h and about 60 cm at the maximum is kept in vertical position. Inside the pot is placed the collected human skeletal remains. Sometimes, small vessels such as bowls are also placed within the pot. In one instance the pot containing human skeletal remains in vertical position, is closed mouth-to-mouth by another small pot (Pl. XXV; 3). There is another way of interring the bones in the graves. First, big vessels are placed on the floor of the pit. These are covered with enough earth attaining some horizontal level. The bones are, then, placed on this levelled earth. After placing the bones in either of these ways, earthen vessels at various levels and in positions surrounded the bones or the pot containing the bones. Iron objects, such as spoon, knife, dagger etc., either horizontally or vertically, are also kept along with the pottery. Thereafter, the pit was filled with the dug out earth almost upto the brim. At the top are put moderately stone rubbles to form a thin cairn that seals the pit. This cairn on the surface may be surrounded by a circle of boulders, in some cases. The only difference between a pit circle and a pit-burial is that the former has a circle bounding the cairn and the latter is without it. In all other respects there are absolutely no differences between the two.

In many of the exposed graves, the pit-line is clearly distinguishable owing to the slight difference in the colours and composition of the soils of the pit and of the surrounding area. Also, it is noticed that the filled up earth is too compact and hard for normal digging. The bedrock is the disintegrating granite, exposed in a few pits and found to have been cut slightly here and there for levelling.

Megaliths in Gugalmari (Dist. Bijapur)

During the explorations in this locality I discovered a neolithic site (Sundara A; 1968 : p. 18) a megalithic burial site and two iron smelting sites with heaps of iron slags.

Stone Circles

North of the village in S. No. 6 are three stone circles, about 3.10 m x 3.50 m and 11.60 m in dia.

A Stone Rectangle

Further north of these stone circles, there is a stone rectangle, 7.15 m square.

Pit-Burials

To the south of the village are a Durga temple and a natural cave locally known as Kottur Basappan Phadi. From this spot northwards is a cart track to the cultivated fields. On the left side of the track are small granite outcrops. Around these outcrops, here and there, are disturbed megalithic graves of exactly the same type as the pit burials of Gajendragad area. Big red ware vase containing bones, surrounded by other kinds of pottery vessels of megalithic fabric buried in pits are found at four spots. In the section of a pit is exposed a disturbed burial. Bone fragments and pottery pieces are jetting out from the section of the burial pit. Fragments of pottery of the megalithic black-and-red ware and the red ware from these and other disturbed burials are found scattered in this area. The types and fabrics of the pottery are also similar to those of Gejendragad megaliths.

Megalithic Remains in Hirehal, Kurgovinkop, Kittur and Kallur

As mentioned above, about 15 km west of Gajendragad these localities cover a stretch of about 30 km in west northwest and east southeast direction, and are situated in the plain fields of the black cotton soil as well as brownish red soil, drained by the Malaprabha and her tributaries. North of these localities, at varying distances from 1 km to about 13 km are the Ramdurg-Badami sandstone hills of the Kaladgi series.

The Megalithic Sites

Many neolithic habitation sites were recently discovered (Sundara, A ; 1968) in many localities including the above in the Malaprabha valley. In some of the sites megalithic pottery, and sparsely small pieces of what apparently look like human bones and fragments of highly corroded iron objects are found. But neither disturbed megalithic graves nor any megalithic architectural remains either in the sites or in the nearby areas or on the hills nearby are found or reported. The sites are located in the fields under cultivation as follows :

1. Hirehal : About 2 km to 3 km southeast of the country track between Hirehal and Tallihal passes through the site, locally called, Hal Hola or Gopal Bhattara Hola.
2. Hole-Alur : South of about a km away; near the railway station, locally called Hal Alur.
3. Kurgovinkop : West of the locality, about 500 m away. The country track between Kurgovinkop and Kittur runs through it.
4. Kittur : Northeast of about a km away.
5. Kallur : Southwest of about 3 km. away.

Megalithic Remains in the Sites

Neolithic remains including micaceous grey ware pottery of Maski fabric,

ground tools, parallel sided blades, highly lime encrusted animal bones, etc., are profusely found in these sites. Besides, megalithic pottery of the black and-red-ware, the all-black ware, and the red ware also occur in varying quantities. While it is sparse in Hirehal and Hole-Alur it is comparatively in profusion in Kittur and Kallur, put in any case, not as abundant as the neolithic pottery.

It is noteworthy that the pottery is found scattered rather thickly only in some parts of the site unlike the neolithic pottery which occurs all over the sites, as revealed by the careful survey of the sites. Secondly, highly polished black-and-red ware, the all-black ware pottery and the bright red ware pottery are predominant. However, the red ware pottery in different fabrics and in types, is comparatively few. Usually, elsewhere, it is observed that in megalithic habitation sites of this region are found the red ware in different fabrics such as the bright red ware, the dull red ware and the coarse red ware and in its numerous types. Besides pottery, among the small pieces of bones some apparently appear to be human bones.

It is particularly noteworthy that no megalithic pottery occurs outside the neolithic habitation area.

All these factors, significantly seem to suggest that the presence of the megalithic pottery in a particular manner, described above, is probably due to the disturbed graves containing megalithic pottery as burial furniture and not due to the common use of this pottery only for domestic and other purposes by the people inhabiting the sites. It may be recalled here that different types of pit-burials have been found in the habitation site at Maski (Thapar; 1957). Thus, nevertheless no megalithic architectrual remains or burials as such, are found the sites are important.

The burial is post-excarnate, fractional and, therefore, secondary, suggested by the condition of the bones and the mode of their presence either in a pot or outside it.

No specially prepared jar for interring bones like the urn-type commonly used in the urn-burials of South India, has been found in these megaliths. Any big pot of red ware would serve the purpose.

No particular orientation architecturally or in the lay out of the skeletal remains, is indicated. In Brahmagiri, e.g., the orientation of the pit-circle seems to have been suggested by the false door sometimes provided to it. (Wheeler; 1948: Pls. XCVI, XCVII).

6

MEGALITHS IN THE ZONE OF THE DECCAN TRAP

Environment

The northern part of the region under study covering the upper parts of Dists. Belgaum, Bijapur and Gulbarga, comprises entirely the Deccan trap as far down as the Krishna Valley and forms part of the Deccan trap region of the upper Deccan. The hills rounded and plain, especially in the west are capped with thick laterite formation having steep sides.

The rock weathers into spherical bouldery masses of various sizes, normally 60 cm to 80 cm in dia. These boulders so formed are carried down to the lower valleys and buried in the migrating soil sometimes many kilometres away from the places of their origin.

The rock is hard and slabs can be quarried but not as easily as in the granite-gneiss. The stone is harder than the others. To obtain slabs from this rock is more laborious and difficult.

Laterite, here and there, is rich in iron. I noticed an ancient iron smelting site in Benkotgi in Tk. Dindgi, Dist. Bijapur.

The area is drained by the rivers Bhima and Krishna and their tributaries. Throughout it has a thick cover of the black cotton soil which is very fertile.

The Megalithic Sites

From the river Tapi southwards to the Krishna some megalithic sites in the Tapi valley as at Ranjala (IAR; 1960-61: p. 26), Junapani (IAR; 1961-62: pp. 32-34), in the Vidarbha region (Dikshit, M. G.; 1968 : p. 31, Deo, S. B.; 1970) and in the Maratha-wada region (ARADH; 1933-34 : p. 7. 1934-35 : p. 1) are noticed.

In the trap zone in Karnataka about 18 sites are so far known. Of these seven sites (ARADH ; 1933-34 : p. 7. JHGS; 1947 : p. 57) were previously known and the rest were discovered by me.

I examined 13 of these sites. Excepting the three sites at Madnahalli, Chik-mannur, Jaknur and Chingundi in none of the other sites, any megalithic architectural

remains, such as cairn stone circles, round barrows, or chamber tombs etc., on the surface, are found. Only a few megalithic black-and-red ware and red ware could be picked up from the neolithic sites there on the banks of the Bhima and the Krishna.

In Chik Mannur and Madnahalli, on or near the bank of the river Bhima and Jaknur and Chingundi on the bank of the Krishna, cairn stone circles are as follows:

Chik Mannur	... 4 nos.
Madnahalli	... 2 nos.
In between Jaknur and Chingundi	... 8 nos.

The cairn stone circles in these sites are of the usual type. Those in Chik Mannur situated in the eminence beside a chalcolithic site, are 3.50 m to 6 m and from 10.50 m to 11.50 m in dia.; those from Madnahalli situated in the slope of a hillock, about 5 m in dia. Those in Jaknur Chingundi at the foot of a sandstone hill of the Kaladgi series, are from 3 m to 5 m in dia.

Raw Materials and Dressing

For the circles, the Deccan trap boulders at Madnahalli, laterite at Chik Mannur and sandstone blocks at Jaknur, Chingundi are used. The cairn packing invariably consists of the Deccan trap rubbles and at the last site, the quartzitic sandstone rubbles also.

The laterite blocks are dressed into rectangular blocks and the circles of these are perfect.

PART III

EXCAVATIONS OF THE MEGALITHIC SITES IN NORTH KARNATAKA

7

MEGALITHIC SITES AND THEIR EXCAVATIONS

In the last five chapters the architectural features as visible on the surface of all the megalithic burial types known so far in the various geological environs and their distribution pattern etc. are given in detail. However, complete structural details of certain burial types, for instance, cairn stone circles, round barrows, menhirs, can be known only from excavations of representative types. In fact, this is true in the case of all the burial types. In the case of some megaliths, owing to previous disturbances, different parts of the various megaliths that are surface built, are exposed inasmuch as their architectural parts can be fairly well known by piecing together, methodically, the evidences. But whether these various burial types belong to one homogeneous cultural complex, and other questions regarding their chronology, the racial composition of their builders etc., can be solved only from a series of well planned and problem oriented excavations. Further, to know about some of the aspects of the material culture of the megalith-builders excavations of the habitation sites are necessary.

Unless evidences from the excavations are coordinated with those of the field study, no coherent and meaningful picture of the culture represented by the megaliths can be had.

Fortunately, in the past, excavations, though few, of some tomb types and of the habitation sites especially by Taylor, (1941) in Dist. Gulbarga and more recently by Subba Rao (1948) at Sanganakallu, the Archaeological Survey of India (Thapar ; 1957) at Maski, Allchin (1960) at Piklihal and the Deccan College Post-Graduate and Research Institute and the Karnatak University at Sangankallu (Ansari and Nagarajā Rao; 1969) and at Hallur (Nagaraja Rao; 1971) were carried out in North Karnataka. The excavations at Brahmagiri (Wheeler; 1948) which is only 45 km south of Bellary, having a tomb type similar to the port-holed dolmenoid cist-circles of Hire Benkal, are in this respect particularly noteworthy.

As a part of my study, I excavated three passage chamber tombs of the new types and two cairn stone circles at Terdal and Halingali and explored a few megalithic habitation sites.

What follows is, therefore, a systematic account of the explored and excavated megaliths in North Karnataka.

Finally, it may be noted that the study of the excavated and explored materials in each of the geological zones is done separately in order to know the regional pattern of the megalithic material culture. Further, the representative pottery types in my collections from the surface of some megalithic habitation sites and from disturbed burials, which are intimately akin to the well-known respective types of Maski, are simply referred to, to point out the cultural affinity of the sites with that of Maski. To avoid duplication, they are not fully described and illustrated.

It is noticed above that there are twelve types of megaliths in North Karnataka as follows :

1. Passage chambers of the four types.
2. Small square chambers.
3. Port-holed dolmenoid cist-circles.
4. Dolmens with or without port-hole.
5. Oblong dolmenoid cist or cists with or without port-hole.
6. Passage cairn stone (cist or pit) circles.
7. Pit-burials (of the four types).
8. Cairn stone circles (of the pit-circle type).
9. Round barrows.
10. Menhirs and stone alignments.
11. Irregular polygonal chambers.
12. Rock-shelter chambers.

1. *Passage Chambers of the Four Sub-Types*

i. *Passage Chambers of the Konnur Type : Excavation of*

A passage chamber at Konnur was dug by an European (Burgess, J; 1874 : pp. 306-08). Bones, pottery and ashes of charcoal were got from it. A hemispherical bowl and ground plans of three passage chambers called No. 1, No. 13 and No. 46 and vertical sections of the latter two are illustrated (Joyner, R.B; 1884: pp. 582-84). Besides, magnetic compass readings of the orientations fifty megaliths are recorded (p. 582).

Among the illustrated, No. 1 is a passage chamber enclosed in the cairn packing which is unbound by a circle or a rectangle. No. 13 is bound by a rectangle and No. 46, by a circle.

Excavations of a Long Barrow in Hunur

The long barrow containing, as evident on the surface, two passage chambers in Hunur, referred to above was excavated in February-April, 1969, by the Archaeological Survey of India, South-Western Circle, Aurangabad. The excavations were undertaken as a salvage operation of collecting data at least in the case of a few burial types there, when I brought to the notice of the Archaeological Survey that these important sites would be submerged and lost for ever to the posterity when the irrigational dam under construction in Hidakal was completed and suggested for excavations of some megaliths there. I participated in the major part of the excavations, from the

beginning. A brief report of the excavations with illustrations is published in IAR (1969-70).

The long barrow was really found to contain three tombs and a number of pot-burials (Pls. IV & V). Two of them were enclosed by stone circles which were concealed in the cairn packing. The third found behind the one in the western part of the barrow and outside the rectangle of the other two.

The passage chamber 2.50 m square, in the eastern part of the barrow, called tomb No. 1 (Pl. IV; 2), was found to have been enclosed in a dry cairn packing which in turn was held up by a circular dry wall (8.40 m in dia) of six courses that is very gradually incurved. This structural complex was raised on a prepared platform of rubble packing bound by a rectangle 15 m x 15.60 m. All these features were completely concealed in the cairn packing of the long barrow.

In the western part of the chamber, the passage chamber tomb, called tomb No. 2 (Pl. III; 4) was covered with two prodigious capstones one on the chamber and the other on the passage lying flush with the surrounding cairn packing. The tomb was, therefore, thought to be undisturbed. On the removal of the capstone, the tomb was found to have been filled with stone rubbles and earth.

This tomb also was enclosed in the cairn packing, which in turn was held up by a circle (9.65 m in dia.) of stone blocks in single course at the top level completely covered up in the overlying cairn packing, that was enclosed in a rectangle that recedes slightly on the southern side.

The passage opened into a rectangular forecourt 3.55 m x 2.95 m formed by coursed walls with a paved floor, an unusual feature in this type of the passage chamber. At the outside of the western junction of the forecourt and the passage is a small chamber formed by coursed walls a quadrant circle on plan.

This passage chamber 3.25 m x 1.30 m also raised on a platform of cairn packing bound by a rectangle (11.40 m x 9.8 m). But the circle enclosing the tomb is of one course only.

The construction of the tomb is cyclopean and not orthostatic like that of tomb No. 1.

The exteriors of the stones of the circles are dressed. It appears that tomb No. 1 with its rectangle was built first,[1] as the southern side of rectangle of tomb No. 2 abuts the other and the eastern arc of its circle seems to overlie almost the western side of the rectangle of No. 1.

Pot-Burials

A number of pot-burials (Pl. V) were found in upper levels of the cairn packings of the platforms, but outside the circles enclosing the passage chambers. The pots of usually coarse red ware contained some bone pieces presumably of children and occasionally accompanied with one or two bowls. In view of their greyish colour and presence of small pieces invariably without big fragments of skull parts, long bones

1. This observation was made by Sri B. Narasimhia of the Archaeological Survey of India, South-Western Circle, Dharwar and was conveyed to me. I am thankful to him.

etc., and of the simplicity of the burials, the burials are perhaps post-crematory and of the children.

Antiquities from the Burials

The antiquities from these excavations, very few in number and varieties, are pottery and a copper object.

No iron objects were found. But in view of the fact that these tombs were already disturbed and of the occurrence of iron objects in the passage chamber of the Latin Cross type, called Megalith III in Halingali, which will be described below, the absence here is in all probability, due to the previous plundering. Besides, the presence of iron in megaliths is not in every case, invariable. In the Megalith V, at Brahmagiri which is a cist-circle no iron objects were found (Wheeler, 1948: pp. 190-192).

The copper object got from one of the pot-burials, is of a four walled bell with a rectangular base and a suspension loop at the top.

The pottery from the chamber tombs are in two fabrics: the red ware and the black-and-red ware. In general they are analogous in fabrics and some types to the megalithic pottery of Maski with some slight differences between the two and exactly similar to those of the megaliths in Terdal and Halingali which will be described below. The pottery types are a few. Vases usually with collared rims in the red ware and hemispherical bowls of the black-and-red ware, are the most common types. Here, as in Terdal, Halingali also it is found that the black-and-red ware pottery are comparatively very few.

The pottery of the pot-burials, consists of almost invariably a red ware globular pot of medium fabric with collar like thick rim. It appears to have red wash and not slip.

Some Observations on the Excavations

From the above exavations it is observed that:

I (a) The passage chambers of the long barrow are raised on a specially prepared rectangular platforms.

(b) The passage chambers are enclosed in the cairn packing bound by circles.

(c) And after the ceremonial burial probably the platforms bearing the encircled passage chambers were completely covered with cairn packing upto the capstones, forming into an imposing long barrow.

(d) Two or more tombs built side by side at different intervals probably belonging to a group of families, were concealed in course of time under one cairn packing resulting in a long barrow. That a long barrow was not generally built at one stretch is evident in the architectural features of the rectangles and circles of tombs Nos. 1 and 2 respectively and the presence of a third tomb outside the rectangles but under the same cairn packing of the other two.

II (e) There were many pot-burials perhaps of childern and post-crematory in character.

(f) That all these pot-burials were found in the cairn packing only. But, it is noteworthy that they are outside the circles. This feature evidently suggests

that the pot-burials are probably much later than the passage chamber tombs and perhaps of some other community who used the already existing imposing and extensive long barrows for burying the urns.

(g) And the absence of iron was not culturally significant, since the tombs were disturbed earlier and remains of iron objects are found in the other similar disturbed burials.

ii. *Passage Chambers of the Greek or Latin Cross Type and Passage Circular Chambers: Excavations of.*

The megaliths in Terdal-Halingali area are predominantly of the above two types, the other types being small rectangular chambers and cairn stone circles and round barrows. During November 1965-January 1966 under the guidance of Dr. Sankalia, I excavated three passage chambers, one of the Greek Cross type, the other of the Latin Cross type and another a passage circular chamber and two cairn stone circles. Besides, I excavated two round barrows thinking in the beginning that they were one of the types of the megaliths in the site. But the excavations revealed that they were chalcolithic round barrows. The megalithic excavations are described below. Elsewhere (Sundara ; 1969-70 : pp. 23-34) a report on the excavation of the chalcolithic round barrow is published.

Object of the Excavations

Examples of the types of pit-burials, cairn stone circles, pit circles, cist-circles, and menhirs all in the peninsular gneissic complex were excavated in North Karnataka and at Brahmagiri etc., in South Karnataka. They are very well documented and described. Reports on these excavations are published and referred to above.

Of the various types of megaliths the passage chamber, particularly of the subtypes found in Terdal Halingali area, is one of the distinct types in North Karnataka in fact in the whole of the Deccan and South India. Secondly, these types are found in a different geological zone, i.e., of the Kaladgi series.

Thirdly, no megaliths of the passage chamber tomb types had systematically been excavated previously. Their complete characteristics, relationship with the other known megaliths and the relative chronology were not known.

Fourthly, the area in which the passage chambers are situated, forms the western part of the region while those already examined are in the eastern part of the region.

Thus, typologically, geologically and geographically, excavation of some megaliths of the type in question, were necessary, in this part of Karnataka.

In the light of the above observations and in order to know more about the rare but distinct types of the megaliths in North Karnataka the excavations were conducted.

The types of the megaliths excavated and their locations are as follows (Fig. 21) ;

TABLE

No.	*Locality*	*Megaliths excavated*	*Type*	*Situation*
1.	Terdal	Megalith I	Passage circular chamber.	Situated in a terrace of the hillock at the contours between 1900'-1925' in between Terdal and Halingali and about 2 km from the former (Fig. 21, Mg. I) in Terdal area.
2.	,,	Megalith II	Passage chamber of the Greek-Cross type	Situated in a terrace of the hillock in between 1900'-1975' about 1 km. from Terdal (Fig. 21, Mg. II in Terdal area)
3.	Halingali	Megalith I	Cairn stone circle	On the flat surface of the hillock between 1875' and 1900' contours 300 m south of Halingali (Fig. 21 ; Mg. I in Hallngali area).
4.	,,	Megalith II	,,	Situated near the Megalith I. (Fig. 21 ; Mg. II in Halingali area)
5.	,,	Megalith III	Passage chamber of the Latin Cross type	Situated in a terrace of the hillock between 1755'-1800' contours about 500 m west of Halingali (Fig. 21 in Halingali area).

Terdal : Megalith I

This is situated in the rocky area with thin soil cover of varying thickness, near the foot of a terrace of 1925-50 contours. The area slopes gradually northwards. There are many passage chambers of the two types nearby.

To the east of this megalith, about 50 m away, is the chalcolithic round barrow.

This megalith (Pl. VIII ; 1. Fig. 8 ; 1) consists of a circular chamber of 2 m in dia. with a passage oriented south-south west wards buried almost completely in a cairn packing bound by first a circle of 3 m in dia and then a rectangle of 6 m square. Inside the chamber are three slabs of rectangular section erected as pillars in a

triangular way carrying a single capstone on the top. The passage of the chamber is short, 70 cm l and interiorly 50 cm b terminating at the inner side of the circle. It is closed in the front with a block of stone. The height of the chamber, the circle and the rectangle on the one hand and the sizes of the stones thereof on the other are in descending order. The cairn packing between the chamber and the circle, the circle and the rectangle consists of sandstone rubbles and earth.

The chamber and the circle are perfect while the rectangle is partly irregular as the western side is curved.

The stones of the chamber and the circle are roughly rectangular whereas those of the rectangle are not uniformly rectangular. The average measurements of the stones of the chamber, the circle and the rectangle respectively, are : 90 cm x 60 cm x 30 cm ; 60 cm x 40 cm x 20 cm and 50 cm x 25 cm x 15 cm. The top edges of the orthostats are in the same level, but those of the circle, occasionally vary. When the height of a particular stone is a little lower, a small rectangular stone slab is placed on the top so as to raise the height equal to that of the adjacent slabs. Some of the stones of the rectangle here and there are fallen flat.

The pillars in the chamber are also roughly rectangular slabs measuring on an average 1 m l x 55 cm b x 20 m thick and from the surface of the chamber they rise 40 cm to 60 cm h. The capstone resting on the pillars is roughly circular, measuring 1.25 m l x 1 m b x 0.16 cm t. None of the stones, be it of the rectangle or circle etc. is dressed.

The orthostats of the chamber and the upright stones of the circle and of the rectangle, are closely juxtaposed. No gap is left between them.

Along the slopes of the terrace loose stone slabs are exposed in large numbers. This exposure must have provided some suitable slabs for the construction.

For excavation, the chamber was marked into four quadrants. The quadrants were excavated one by one down to rock surface. In the centre of the north-western quadrant at a depth of 55 cm to the lower part of the broken pot of the red ware, containing human skeletal remains, fragments of a dish of black-and-red ware, of a small vase of the red ware, a lid with flanged waist of coarse dull red ware, near the orthostats at the same level respectively in the north-eastern, the north-western and the south-western quadrants, in the midst of stone rubbles and earth, were got. No iron objects or any other antiquities were found. The extremely fragmentary condition of the burial furniture and the positions in which they are found, suggest that the megalith was previously disturbed.

The pillars at the bottom had packing of stone rubbles and earth to keep them erect. They were slightly at a lower level than the orthostats of the chamber. Two of the pillars and some of the orthostats were set up on the flat tops of the boulders naturally lying even before the construction of the megalith there. At this level the chamber was 90 cm deep.

Since no antiquities or burials other than the above mentioned were found, it was suspected if some burial remains were there beneath the pillars. The pillars were, therefore, removed intact. In between the boulders only earth and rubbles and no antiquities were found. The boulders were found lying on roughly even bedrock that was at 1.30 m from the top of the chamber.

The passage, too, was filled with earth and stone rubbles containing a few pottery pieces. The front opening of the passage was closed partly with cairn packing at the lower level and partly with stone slab of 30 cm h wider than the opening of the passage and resting on the cairn packing surrounding the chamber. There is no port-hole in the door slab.

The chamber including the passage originally after the burial ceremonies, was covered on the top with capstones probably in the manner shown in Fig 8; 2, of which the central one only remained.

Howsoever the evidences from the excavated megalith are scanty, one important aspect is undoubtedly clear : the burial is secondary and post-excarnate.

Terdal : Megalith II

This is a passage chamber of the Greek Cross type, 3.45 m x 3.40 m along the principal axes buried up to its top edge in the cairn packing of stone rubbles, pegmatite or white quartz fragments and red earth, which in turn, is bound by a rectangle, 4 m square (Pl. IX; 4. Fig 9; 1).

The capstones of the chamber were missing. The orthostats of the chamber were intact in their positions. Some of the stones of the rectangle on the southern and eastern sides are fallen flat and some others, missing. In the eastern part of the chamber within, was visible the top edge of a stone slab.

The excavations revealed that this megalith was also disturbed earlier. Stone rubbles and earth mixed with worn out fragmentary pottery of two fabrics ; the red ware and the black-and-red ware and small fragments of bones, in large numbers, were found from about a depth of 20 cm to 75 cm in all the parts of the chamber (Fig. 10; 2). Considerable number of potsherds in the same condition, and bone pieces were found helter-skelter in the southern part of the cairn packing outside the chambers as well.

With reference to the present ground level, it was evident that an area of about 4 m square was dug to a depth of 30 cm to 50 cm as the ground slopes eastwards. The ground then was levelled leaving the flat rock surface wherever existed (Fig. 9; 2). The chamber was raised on this levelled ground, and was enclosed in the cairn packing which was bound by the rectangle.

The interstices between the orthostats were filled with small blocks of stones. The plan of the chamber was neither clockwise nor contra-clockwise. (Fig. 9; 2). Some space is left between the passage and the rectangle.

Halingali : Megalith I (Pl. XIII; 2)

This cairn stone circle, externally 5.50 m in dia (Fig. 12; 1) slopes gradually south and south-eastwards, the cairn of stone rubbles rising 20 cm h at the centre from the natural surface and was low domical in form. The stones of the circle are undressed boulders of irregular shapes and sizes and placed closely one beside the other. All the stones were intact in their positions. The cairn did not have signs of disturbances on the surface.

Excavations by the quadrant method revealed that the fillings of stone rubbles were uniformally the same down to the bedrock exposed at an average depth of 85 cm

(Fig. 12; 1 a). There was no cist or burial pit in the cairn packing of the circle. Some small fragments of pottery of the megalithic fabric from different quadrants and different levels were got. Besides, a modern bead of jasper at a depth of 30 cm in the south-east quadrant was found. Thus, the details of the structure and the positions of the antiquities clearly point out earlier disturbances to the megalith.

The bedrock exposed in the circle, slopes somewhat rapidly south-eastwards. Consequently, the depths comparatively vary from 50 cm to 1 m on an average (Pl. XIII; 2).

Halingali : Megalith II. (Pl. XIII; 1)

This was also found to have been completely filled with stone rubbles and earth upto a depth of 90 cm at the maximum at which the bedrock was exposed. In the filling neither a burial pit nor a cist was found. The bedrock was depressed near the western part of the circle (Fig. 12; 2, 2a : Megalith II : Section). A few potsherds from the different parts and levels were got.

Halingali : Megalith III.

In the above excavations, all the four megaliths which were thought to be undisturbed as apparent from their surface appearances, were found previously disturbed. The data from these megaliths were insufficient to have a clear knowledge of even the pottery. The other megaliths in the site, of course have clear indication of earlier disturbances to them. However, I selected the above one which was one of the biggest in the site, thinking that it was too big for thorough destruction and it, therefore, might yield at least, some useful evidences, if excavated. Fortunately, from this were got some types of pottery, iron objects that were enough to get a clear picture of the pottery, and the economic stage of the megalith builders.

The megalith is a passage chamber of the Latin Cross type measuring interiorly 5.35 m (E-W) x 6.50 m (N-S), with the passage, 2.60 m l and 70 cm b, exactly south oriented. This is enclosed upto the top in the cairn packing of stone rubbles which was held up by a rectangle, 11·20 m square, roughly. The rectangle is a dry wall of four or five courses (Pl. X; 1, 2). Within the chamber were stone rubbles upto a certain level. There were no capstones. But the two big stone slabs found one in the eastern part of the chamber leaning against a pillar and another fallen on the stone rubbles in the western part, must be the extant capstones, displaced. One pillar in the eastern part unbroken, was visible.

The walls of the chamber are cyclopean in construction and raised by placing the slabs flat one on the other (Pl. XI) so that each course slightly oversails the one beneath (Fig. 11). At the top the slabs are arranged radially to narrow the top and to cover it conveniently.

On the gradual removal of the stone rubbles from the chamber two broken pillars measuring 85 cm h x 40 cm square and 55 cm h x 35 cm square respectively, one in the centre of the western part and another in the northern, were found. The pillar in the eastern part (Pl. X; 3, 4. Fig. 11) is 1.55 m h. The pillars are either rectangular or square in section. There was no pillar in the centre of the chamber. There must have been a pillar which was destroyed owing to the previous disturbances. For, in

the other passage chambers of the type, there are invariably four pillars, those in the eastern, central and western parts on the one hand and in the central and in the northern on the other, being aligned.

The stone rubbles at the lower level were mixed with earth also. Considerable quantity of pottery, iron objects from a depth of 1 m from the top to about 1.50 m deep, in all the parts of the chamber including the passage, were got.

It was found from the quantity of the pottery from the eastern, northern, western and central parts of the chamber and of the passage, that the pottery was more in the first two parts.

At a depth of 1.50 m by the side of northern wall of the western part, was a small group of pottery and an iron object, consisting of a red ware elongated cup of flaring profile and a lid with flanged waist of coarse red ware (Pl. IX: 3) and a broken iron saucer with handle. Likewise, beside the eastern wall of the northern part of the chamber, 1.20 m deep, was found broken pottery of dish-on-stand on stone rubbles and earth (Pl. IX ; 2).

Another broken saucer was found in the debris of stone rubbles and earth in the passage at 95 cm deep, nearer the eastern flanking wall of the passage. Again, an intact iron saucer containing earth, a few pieces of bones and a potsherd, were found in the eastern compartment and near the southern wall midst of stone rubbles and earth (Pl. IX; 1) 1.40 m deep. Small iron straps, broken rods, a thin curved blade were found more or less in the same level more in the western part of the chamber and a few in the others. Besides, a small thin rectangular copper sheet with two notches was also found in the western part in the same level.

At 1.55 m, the natural ground surface on which the passage chamber was raised was disclosed.

On all the sides, it was found that the walls were raised on the natural even surface.

The passage in the front was filled upto about 50 cm h from the ground level, with the cairn packing surrounding the chamber. The portion from the cairn packing above, was covered with three stone slabs, one on the other, the lower and the upper being in vertical, and the middle in horizontal positions (Pls. X; 5. XI; 1).

The stone rubbles and the earth from the cairn packing had overflown on the sides of the rectangle on the east, north and south. Consequently, these sides are concealed. On the removal of the overflowing cairn on these sides and on the inner side of the wall it was disclosed that the exteriors of the stone blocks of the coursed wall, were dressed (Pl. X; 2) while the interiors were rough and undressed.

Thus, the dressing of the stone was confined only to the exterior. The method of closing the passage, the arrangement of the pillars and the level at which the chamber was raised could be known, besides obtaining pottery giving a clear idea about the types and the fabrics and iron and copper objects.

Antiquities from the Excavated Megaliths

From Megaliths I and II of Terdal and Megalith III of the Halingali were

recovered very small pieces of uncalcined human bones, pottery and iron and copper objects. They are described below :

1. *Human Bones*

The human bones, in very small quantities are extremely fragmentary and fragile mixed with the earth very much. Apparently, they did not include identifiable important parts of the skeletons. These and the fragmentary skulls from the Gajendragad burials are being studied.

2. *Pottery*

Terdal : Megalith I

Mention of the occurrence of a few broken pottery vessels in Megalith I, is already made above.

Terdal : Megalith II

From Megalith II were got about 200 potsherds of red ware and two black and red ware sherds, two neolithic highly micaceous grey ware sherds and two chert flakes and very small fragments of bones from all parts of the chamber. Excepting a fragment of a lid with flanged waist of coarse red ware and of a red ware bowl with featureless edge and vertical sides, the remaining potsherds were much worn out and did not include any rimsherds.

Outside the chamber, from the cairn packing, especially of the southern part about fifty worn out potsherds and bone pieces could be collected.

The presence of the neolithic grey ware potsherds in the filling must be due to chance in view of the neolithic sites nearby.

Halingali : Megalith I

About 48 small potsherds within an average depth of between 35 cm and 65 cm from all the parts of the cairn packing were obtained of which 35 are from the eastern part of the cairn packing. Of these 8 potsherds, were black slipped and the rest were very much worn out. No shapes could be known as there were no rimsherds.

Halingali : Megalith II

In all about 29 potsherds were collected from all the parts of the cairn packing within a depth of between 35 cm and 70 cm. Of these, five are black-and-red ware sherds including a featureless edge of a slightly convex sided bowl of black-and-red ware.

Halingali : Megalith III

About 920 potsherds besides two pottery bags full of very small potsherds were collected from this megalith; 500 of them were, rather better preserved.

The potsherds were found concentrated mostly in the western part of the chamber and less in the northern and central parts and least in the eastern part.

I have given the statistics of the potsherds recovered from each of the burials to give a rough idea about the possible quantity of the burial pottery that originally these megaliths had and the rate of the destruction caused to them.

The number of potsherds from each part of the chamber and each quadrant of the circles and from various depths, was separately recorded in order to know the

quantity of pottery deposited at different levels in each part.

Unlike the pottery from habitation sites and undisturbed burials that are usually better preserved, most of the sherds from the above megaliths, have their edges blunted and surfaces scraped and are thickly encrusted with brownish soil. This highly weathered condition of the pottery is probably due to rain water action, disturbances by human agency and their presence amidst stone rubble and light brownish soil.

No full pottery vessels from any of the excavated megaliths were got. Rim sherds in some number could be got only from Megalith III of Halingali. The rimsherds from other megaliths are together about five. Not a single potsherd bearing graffiti from the entire bulk of the pottery was found.

The pottery are in two fabrics : the red ware and the black-and-red ware. When all the pot sherds from Megalith III of Halingali were examined it was found that the red ware was much more than the black-and-red ware. The red ware potsherds were about 430 and the black-and-red ware pot sherds about 70.

It is noteworthy that during the explorations of the other sites, I found that among the potsherds sprinkled near the disturbed burials, the red ware pottery was very common. The black-and-red ware pot sherds were comparatively rare.

The Red Ware Pottery

This pottery occurs in two fabrics ; bright burnished ware and coarse red ware.

The fine red ware is of medium, less gritty, usually black and sometimes brick-red core. White quartz particles used as grit are generally found in the core and on the exterior. Use of grass in the clay is evident from the crevices in the unslipped interiors of the pot sherds. It is noteworthy that the slip is generally rather pinkish red and not deep red like that of the bright red ware pottery of the megaliths of Maski and the other sites. It is applied to the exterior and to the upper part of the vessels. It is frequently burnished. It may be peal off in flakes. Regular striation marks in the interior of many pot sherds and of their uniform thickness suggest that they were wheel made.

The types in this fabric are : neckless vases with collared rim (Fig. 17 ; 1-2) or vases with outcurved thickened rim with an undercut (Fig 17 ; 4) or with outcurved rim having thickened and rounded edges, hemispherical bowls (Fig. 17 ; 5) and basins (Fig. 17 ; 12-14).

The coarse red ware is of coarse gritty black and occasionally brick red core, and usually has dull buffish red wash. Usually lid with flanged waist and sometimes basins are of this fabric. The black-and-red ware is of medium to fine black core containing fine powdery white quartz particles. It is slipped and sometimes highly burnished. Bowls (Fig. 17 ; 15-18), dishes and lids (Fig. 17 ; 19,20,21) are generally of this ware.

Again, it is noteworthy that lids with flanged waist and neckless vases with collared rims of red ware and bowls and basins of black-and-red ware are predominant.

Comparatively, while the above types occur in the megalithic levels and burials at Maski and the other sites of the granite-gneiss zone, big jars with short vertical, externally ledged rim, vases with carinated body, oblique sides and everted rim,

platters of red ware and dishes with carinated body short, vertical sides and everted edge, funnel shaped lids, connoids, vases with featureless, outturned rim, concave neck, squat body and pointed bottom which are frequently found in the burials of the granite-gneiss zone, are not found in the excavated megaliths here. I observed the same in the case of the other disturbed megaliths in this area.

No pot sherds from these megaliths and from the other disturbed megaliths have graffiti marks.

Some pot sherds of medium to fine fabric are all black. Whether they are parts of the black-and-red ware or all black ware vessels is not certain. No complete all black pottery vessel is found.

In general, the pottery fabrics and types, are similar to those of Maski megalithic.

The representative types of the pottery are described below :

The Black-and-Red Ware Pottery Types

Type I : Rim of a vase with slightly everted rim, concave neck and less globular body. The edge of the rim is thickened. The exterior of the shoulder is corrugated. The core is fine and black and the slip, burnished (Fig. 17 ; 9).

Type II : Inturned edge of a basin double grooved ; of medium black core and section. The slip much worn out, is burnished. (Fig. 17 ; 14. cf MSK. Fig. 22 ; 30).

Type III : An internally bevelled pointed edge of a hemispherical bowl. Of fine black core and thin section. The slip is burnished. (Fig. 17 ; 18. cf MSK. Fig. 22 ; 3).

Type IV : Internally thickened and truncated edge of a shallow dish. It is externally grooved near the edge. Of medium black core and thickness. The slip is burnished (Fig. 17 ; 19. cf. MSK. Fig. 22 ; 10).

Type V : Fragment of a shallow dish with vertical pointed edge thickening towards the bottom, truncated bottom and sagger base. Of fine black core and medium section. The slip is burnished. (Fig. 17 ; 20. cf MSK. Fig. 22 ; 9b and 9d).

Type VI : Edge fragment of a lid with out-going slightly convex sides, and body sharply truncated into hollow knob. The exterior sides near the truncated part, are grooved. Of medium, partly black and partly brick-red, core and thin section. The surface is worn out on the both sides (Fig. 10). A rare type.

The Red Ware Pottery Types

Type I : Collared rim of a neckless vase with expanding shoulders. Of coarse core partly black and partly brick-red and thick section. The slip, much worn out, is burnished (Fig. 17 ; 1).

Type Ia : Variant of 1. The interior is slightly thickened. The shoulder is more expanded. The slip is pinkish red and well burnished (Fig. 17 ; 2).

Type III : Externally beaded and truncated beaded rim of a vase with expanding shoulders. Of thick section. The slip, much worn out is slightly burnished (Fig. 17 ; 3 cf MSK. Fig. 24-40).

Type IV : An outcurved rim, externally thickened with an undercut and

internally sloping and bevelled, of a vase with gradually expanding shoulders. Of thick section, gritty coarse black core. The slip is darkish red, slightly burnished (Fig. 17 ; 4).

Type V : Heavily collared rim of a vase with rather straight neck and very gradually expanding shoulders. Of thick coarse black core and section. The slip, much worn out, is darkish red and slightly burnished (Fig. 17 ; 5 cf MSK. Fig. 24 ; 52, roughly).

Type VI : Outcurved rim of a vase with vertical neck. The edges of the rim is externally thickened and bluntly truncated. Of medium to fine black core and thin section. The slip, much worn out, is pinkish red and burnished (Fig. 17 ; 6).

Type VIa : Variant of 5 ; there is an indistinct undercut. The slip is dull red and slightly burnished (Fig. 17 ; 7).

Type VI b : Variant of VI a. The neck is almost vertical of thick section. The slip is pinkish red slightly burnished (Fig. 17; 8).

Type VII : Inturned featureless edge of a basin. Of medium black core and thickness; the surface is worn out (Fig. 17; 12. cf MSK Fig. 23; 31, roughly).

Type VIII : Fragment of a hemispherical deep bowl. The edge is horizontally inturned. Of medium black core and uniform thickness. The surface is worn out (Fig. 17; 15. cf. MSK; fig. 23; 31).

Type IX : Fragment of a shallow dish of greyish dull red ware. Of black medium core and rather uneven thickness. The slip is greyish dull. Hand made.

Type X : Featureless edge of a hemispherical shallow bowl. Of dull brick red medium core section and pinkish red slip. Burnished. Apparently handmade (Fig. 17; 17).

Type XI : Fragment of a lid of coarse red ware with flanged waist and low hemispherical top. Of coarse, partly black and partly brick-red gritty core. Much worn out probably had a red wash (Fig. 17; 11 cf MSK. Fig. 23; 27).

Type XII : A cup (or, elongated lid) of flaring profile, with narrow concave sides near the bottom. Near the bottom it is externally corrugated. Of brick-red medium core. The slip, well burnished pinkish red in the interior and upper exterior and black in the lower exterior (Fig. 17; 21).

Superficially it appears to be of black-and-red ware. But, technically, it is not so as the two colours are not due to what is hitherto known as 'inverted firing' technique and the black colour is confined to the lower exterior part and not to the upper part and to the interior as found in the black-and-red ware pottery. The term black-and-red ware usually carries the notion of inverted firing technique and the double colours invariably confined to the particular parts of the vessels.

Secondly, the above vessel may well be of the blotchy red ware, the black colour being due to chance rather than to the deliberate attempt.

There is a bowl with black-and-red colours in a similar manner from Maski (Thapar; 1957 ; 65, type 2).

This type is quite rare.

Type XIII : Lower part of a dish-on-stand. The stand is hollow. The stem is cylindrical tapering downwards. Of medium to coarse blackish core. The surface is worn out (Fig. 17; 22).

Type XIII a : Variant of type XIII; but the dish is deep, narrow and the type is more like a peg than dish-on-stand. The surface is worn out (Fig. 17; 23). Both types of XIII and XIIIa are rare.

3. *Iron Objects from Megalith III, Halingali*

Fragments of iron objects were found only in Halingali, Megalith III. They were recovered from the disturbed debris of stone rubbles, pottery and earth at different spots and levels, between 145 cm and 165 cm depths in the western and the central parts and the passage of the chamber.

The iron objects are fragmentary, highly corroded and thickly encrusted with brownish soil of the debris.

The objects are : saucers, hooks, straps, curved blades, rods and clips.

I. *Saucers* : Some of these may be saucer-lamps similar to those from Tinnevelly (Alexander Rea; 1915 ; p. 20; Pl. V, 8 and 9).

(i) *Saucer* : Circular with truncated flat base and short flaring sides fragmentary 10.2 cm in dia. at the top and 1.7 cm high. Extremely corroded and giving off flakes. Found in the section of the debris in the passage near the eastern flanking wall at 160 cm deep (Fig. 19; I, 8).

(ii) *Saucer* : Intact. The edge of the rim has two projections, diametrically opposite to each other. Probably, they were connected with strap 9 cm in dia. at the top and 1.7 cm h. Found near the southern wall of the eastern part near the passage at 155 cm.

(iii) *Saucer* : A small piece of the rim of a saucer was got near the junction of the western and northern walls at the western part, at 145 cm.

(iv) *Saucer* : The saucer with a handle at the top edge of the rim, projecting obliquely upwards. In the central exterior base is a small circular protruberance attacked with a small strap but broken. Dia. at the top 7.2 cm and height 1.3 cm. Found at the north-western corner of the western part (Fig. 19; I, 1).

II. *Straps* : Two. Both are long straps of rectangular, thin section, gradually curved in the middle varying in width. One of them flattered at one end (Fig. 19; I, 2) 0.6 cm to 1.0 cm w, 0.3 cm to 0.4 cm thick and 17.5 cm l. Found just at the junction of the passage and the central part of the chamber, 155 cm deep. The other strap is 7 cm b x 4 cm t and 18.2 cm l (Fig. 19; I, 3). Found near the above strap beside the eastern flanking wall at 160 cm.

III. *Hook* : A long rod of small circular section the pointed end of which is curved into a hook; 0.4 cm dia. and 9 cm l. Found near the passage, 160 cm deep. Another fragmentary hook was found in the western part at 160 cm.

IV. *Curved blade* (?) : Flat, thin in section. 1.2 cm to 1.7 cm b, 0.3 cm to 0.5 cm t and 7.5 cm l. Found in the western part, 156 cm deep (Fig. 19; II, 5).

V. *Clip* (?) : An iron ring with unforged ends through which pass two straps. The ends are folded. Found in the western part, 160 cm deep. (Fig. 19; II, 4).

VI. *Rods* : 13 nos. All fragmentary circular in section and three of them rectangular in section. One is curved. Of varying thickness and with broken ends, found in the western part between 150-165 cm (Fig. 19; II, 6 and 7).

VII. Iron objects of indeterminate shapes. Some are broken straps (4 nos) thin rectangular in section. Found in the western and central parts of the chamber between 150-165 cm deep.

4. *Copper Object*

A copper object, rectangular, thin sheet with two notches at the two corners. Found in the western part at 155 cm (Fig. 19; II, 9).

The presence of the saucer lamps, in different parts of the chamber at slightly varying levels, seem to suggest the use of the various parts of the chamber tomb in different times, and the tomb, originally, after the burial rites, was not filled up with the debris, during its use.

Dating

From the debris between the depth of 131-140 cm mainly of the eastern part, several charcoal bits here and there were collected and sent to the C-14 Laboratory of the Tata Institute of Fundamental Research, Bombay. The C-14 determination of these samples is as follows :

TF-685, Megalithic deposits. 2080 ± 100 (80 B.C.).

In view of the previous disturbances to the megalith whether the charcoal bits from the megalith are really contemporaneous with the megalith is doubtful. However, at least, the date indicates that the megalith was already in existence before the 1st century B.C.

5. *Pottery Types from the Disturbed Passage Chamber Tombs of the Konnur and Saundatti Groups* (Fig. 18).

Type I : Edge of hemispherical bowl of red ware. The edge is internally thickened with an undercut. Of medium black core with brownish red slip. The slip is slightly burnished (Urbanhatti : Fig. 18; 1).

Type II : Horizontally everted thickened edge of hemispherical bowl of coarse red ware. The interior is indistinctly corrugated. Of coarse, partly blackish and partly brick red core. The slip is dark brownish red (Urbanhatti : Fig. 18; 4).

Type III : Featureless edge of a shallow dish of red ware. Of blackish brick-red core medium to thick in section, pinkish red slip. The slip is burnished. Hand made (Ghodageri : Fig. 18 ; 3).

Type IV : Thickened rounded and externally grooved edge of a dish of red ware. Of blackish brick red fine core, brownish dark red slip (Urbanhatti : Fig. 18 ; 2).

Type V : Fragment of a lid of red ware with flanged waist and hemispherical top. Of coarse, partly blackish and partly brick red core has brick red wash (Urbanhatti : Fig. 18 ; 5).

Type VI : Thickened and truncated rim of a vase of dark red ware with convex

body. The core is coarse gritty, partly, black and partly brick-red. The slip is slightly burnished (Urbanhatti : Fig. 18 ; 6).

Type VII : Fragment of a vessel. Cylindrical and hollow with narrow constricted mouth. Of red ware the core is coarse partly black and partly brick-red core. The slip is much worn out (Hidakal : Fig. 18 ; 8).

iv. *Passage Chambers of the Kaladgi Type*

This type is not excavated so far. In Bhairavanpada, from a disturbed passage chamber oriented southwards were obtained three red ware and one all black ware sherds. One of the red ware sherds is the edge piece of a bowl internally sloping and ridged and externally rather indistinctly grooved and with straight sides. Another red ware sherd has impressed herring-bone design on the truncated shoulder part. The redware sherds have pinkish red slip and crackled surface on the exterior and of medium to a coarse fabric.

2. *Small Square Chambers*

Megaliths of this type are not hitherto excavated. I did not find any antiquities from the disturbed megaliths of this type.

3. *Port-holed Dolmenoid Cist Circles*

4. *Dolmens with or without Port-hole*

From a disturbed port-holed dolmenoid cist circle at Mori Matti Ani in Maskanal, a few pot sherds scattered could be got. They are of black-and-red ware and of black ware. In types and fabrics, they are comparable to those of Terdal-Halingali megaliths.

Taylor (1941 : pp. 23-24) got the biggest port-holed dolmenoid cist and two others dug out, at Hagaratgi.

He obtained pieces of pots, bones charcoal and ash. The pottery included pieces of seven large pots. No iron objects and beads were found.

While I was exploring these sites I got a few pot sherds of black-and-red ware and red ware near the megaliths in Hagaratgi analogous to those of Terdal-Halingali megaliths.

From a few disturbed megaliths of the cairn stone circle type in the cultivated field near the megalithic site at Rajankolur were picked up some pots sherds. The pot sherds are of two fabrics, the red ware and the black-and-red ware. One of the red ware fragments was a rimsherd of a basin comparable to the type 31, Fig. 23 of Maski (Thapar ; 1957 ; p. 68).

Some pieces of bones and highly corroded shapeless iron objects were also found scattered nearby these megaliths.

Port-holed cist-circles were excavated in Brahmagiri. The report (Wheeler ; 1948) of these excavations is too well known for repetition. They are of the same type more or less as the port-holed dolmenoid cists of Aihole, Hire Benkal etc.

No port-holed dolmens of the type found in Rajankolur are excavated in the region.

Outside the region, in Southoukeny, north-west of Pondicherry, (Casal, J.M. and Casal ; 1956) port-holed cist-circle is excavated. It (Fig. 13,14, Pl. XXI, A & B) is surrounded by two circles a feature not found in the megaliths of the above type in Hire Benkal. It is noteworthy that the port-holed looks west and is also closed with a slab. There is no passage leading to the port-hole. Thus it is comparable to the dolmens with or without port-hole to a large extent, of Hire Benkal.

The fabrics and the types of the pottery and the types of the iron objects from the excavated megaliths, are of the South Indian megalithic complex including the region under study in general

Chamber tombs with their port-holes covered with door slabs were excavated in Yeleswaram ann Pochampad. Inside the dolmenoid cist in the latter was a small sub-chamber. In either site there is no passage leading to the port-hole. Also the port-holes are oriented to different directions.

The pottery and other objects from these megaliths generally are similar to those from the megaliths of Brahmagiri.

5. *Oblong Dolmenoid Cists or Cist Excavation of*

M.H. Krishna (1931 : pp. 25-26 pl. IX ; 34 and pl. X) in the course of his excavations at Chandravalli ; found six oblong cists without port-hole. In the debris around one of the disturbed cists, a lead coin with a figure of bull and probably bearing the name of till then unknown prince, Karna, and pottery bowls and near the other three cists potin coins of the Shatahavan, were got. Another rather undisturbed contained lime stones in the upper levels and two pots containing ashes and bones and five other pottery vessels. The other contained four-legged pots, a crushed "elephant-legged urn" and many other pots of varieties including miniature vessels.

Excavations of the next type i.e. passage cairn circles at Jewargi etc. showed that some of them contained oblong cists and the others were pit-circles. They are described below.

6. *Passage Cairn Stone Circles, Excavation of*

Taylor excavated in all eleven cairn stone circles (1941; pp. 10-16, 29-31, 49-52, 105-106) one in Chikanhalli, eight in Jewargi (Bk) and two in Andola. But the illustrated plan No. 7 of the site at Chikanhalli, shows three circles as opened and in his paper dealing with the excavations, reference is there to only one excavated megalith threat. Similarly, in his two papers (pp. 10-16, pp. 45-48) on megaliths numbered as first, second, third and fourth cairn at Jewargi (Bk) are reported to have been dug out, whereas in his another paper (95-104) he gave an account of the excavations of five megaliths called therein cairn A, B, C, D and E from that site. It is not indicated if these megaliths were different from the four megaliths referred to in the other papers.

Thus, in all likelihood, there might arise, at the outset some confusion whether these two groups of the megaliths were one and the same or different from each other. But a keen study of the architectural features and of the contents of each of these megaliths would clearly point out that the first, second, third, and fourth cairns are different from the cairns B, C, D and E and the cairn No. 1 and the cairn A are one and the same.

It may be noted here that the descriptions of the architectural features either of the surface or of the interiors of the excavated megaliths in every case and likewise, a complete account of every articles found and its position in each of the megaliths are not recorded. But in those early days of archaeological investigations, that Taylor, the first to begin understanding megaliths in this region, had taken exceptional care and pains to record faithfully with illustrations, whatever he noticed about them and in the course of the excavations and his views about them, is indeed highly commendable. His findings gave a fairly reliable idea about the nature and character of the megaliths of the sites.

It may be noted here, the term 'cairn' of Taylor for cairn stone circles has been retained in the following account of the excavations lest there should be any confusion about the types of the megaliths excavated.

With this clarification the chief features of the megaliths excavated are summarised below to know their particulars and general characteristics and the extent of the relationship of this type with that of others. It may also be noted that the descriptions of the excavated passage cairn circle C and of the antiquities from it, are not reported by Taylor.

1. *Excavations at Chikanhalli*

Cairn

I. *Architectural Features*

i) Treble circle
ii) The innermost 4.80 m in dia.
iii) Passage oriented SW-NE in the southern segment of the innermost circle.
iv) Two stones oriented NE-SW, on the top of the cairn rather unusual feature.

II. *Excavations*

a) *Stratigraphy* :

i) Loose stones and earth 1.20 m deep.

ii) 1.20 m deep, two large rough, irregular slabs lying in the same directions as the passage, but sloping and directing downwards.

iii) The earth of the pit, cut out in the gravelly murram, was soft without stones.

b) *Contents of the Cairn*

At 3.00 m deep, some remains of pottery and bones.

A little further deep an area of 1.50 m x 1.8 m was found to have been paved with slabs.

On this pavement were placed a number of earthen pots and jars of much large size than those of Jewargi (to be noted, presently below).

These vessels about 15 to 20 in number were covered with lids and contained partly calcined human bones, ashes, pieces of charcoal, mixed with earth.

c) *Burial Furniture*

The pots containing the bones etc., were of polished red ware.

The three types illustrated are peculiar and have no parallel in the known megalithic pottery types. They are also big ranging from 95 cm to 1.10 in height (1941; p. 106).

NOTE: There was no cist. Also no iron objects, utensils, small cups and urns were found.

2. *Excavations at Jewargi (Bk.)*

First Cairn (or Cairn A)

I. *Architectural Features (Surface)*

i) Double cairn circle
ii) Dia. inner circle 12 m internally, outer circle 14.50 m externally.
iii) Space in between the two circles : 1m to 1.80 m.
iv) A passage 1.50 ml and 60 cm interiorly wide and appearing 45 cm high from above the cairn, oriented ne-sw, in the southern segment of the inner circle.

II. *Excavations*

a) *Stratigraphy*

i) The interior of the circle consists of loose stones and earth to a depth of 140 cm from the surface.

ii) Further to a depth of 120 cm very hard and firm, like concrete mass

b) *The Cist*

i) At this depth *i.e.*, 260 cm found limestone slabs overlying the broken pottery and a saucer like pottery vessel.

ii) A little below further, pieces of stone slab in transverse position and then the sides of two upright slabs found. This was the cist with the transverse slab, broken and fallen in, as the capstone. The floor was paved with slabs. The cist, evidently oriented ne-sw, like the passage above. No measurements of the cist, recorded.

c) *Human Skeletal Remains in the Cist*

Near the sides of the cist, found human skeletal remains: the legs and the skull laid in natural order, the face being downwards. The chin had considerable projection, the nasal bones being of unusual thickness and breadth. The two front teeth of the upper jaw were remarkably large and projected over the lower. Though the skull appeared small, in view of the perfect teeth and the sutures of the skull, it evidently was of a grown up man.

Below this skeleton, were the remains of two human skeletons but not as perfect as the above one, the skull of one being remarkably thick.

From the skull to the toes, the upper and one of the lower were respectively 167 cm and 163 cm. The length of the third, was indistinguishable.

The skeletons were laid in north-east and south-east directions, the skulls being towards north-east.

On the western side of the cist were found remains of two thin skeletons, "possibly of women".

d) *Other Antiquities*

1. *Pottery*

i) Medium sized vase with thickened edge, concave neck and globular body (1941: Pl. 111 first in the first row).

ii) Bowl with featureless edge, straight or rather sides inclining inwards and sagger base (1941 ; Pl. III first row).

iii) Platters with internally thickened edge (1941 : Pl. III platters covering the first, second row).

iv) lids with knobs having conical tips (1941 : Pl. III the fourth of the first two rows).

v) Lid with flanged waist (Pl. III, third in the last row).

vi) Hallow stand with concave sides (Pl. III, first in the third row).

2. *Iron Objects*

i) Some pieces of iron evidently spearhead on the northern side of the cist and outside it (Pl. I last of the last row).

ii) Some pieces of iron indistinguishable in form from the eastern side outside the cist.

iii) Iron tripod stand.

3. *Beads*

A cornelian bead ; oblong and cylindrical (Pl. I, Fig. 7).

Second Cairn

I. *Architectural Features (Surface)*

i) Double cairn circle.

ii) Dia. of the inner circle : 4.80 m and of the outer circle, 7.20 m.

iii) A passage appearing partially from above the cairn in the southern segment of the inner circle ; oriented ne-sw.

II. *Excavation*

(a) *Stratigraphy*

i) From the surface to about 90 cm deep : loose stones.

ii) Immediately few further about 1.55 m deep ; murram and earth compact.

b) *No cist.* It was only a pit, 2.10 m l x 1.20 m cut in the hard earth ; oriented north-south roughly.

c) *Human Skeletal Remains*

Remains of human skeleton such as leg and thigh bones, and part of a very thick skull, laid on the bare floor of the pit, in the N-S direction.

d) *Pottery*

On either side of the skeletal remains, placed usual small earthen pots etc., and in considerable quantity.

In fabric and types, the pottery is similar to that of the first Cairn.

e) *Iron Objects*

Pieces of three spearheads of iron, much decayed, amidst the pottery.

Third Cairn

I. *Architectural Features*

i) Single cairn circle.

ii) Dia. 4.89 m.

II. *Excavation*

a) *Stratigraphy*

i) From the surface of the cairn to a depth of 90 cm loose stones and earth.

ii) Beneath the above layer, compact earth to a depth of 1.53 m.

b) *No cist.* It was a pit only measuring 2.40 m by 2.10 m b.

c) *Human skeletal remains*

No human skeletal remains.

d) *Antiquities.*

i) *Pottery*

Fourteen small vessels of various sizes placed on the floor of pits of red ware and black-and-red ware and polished. Similar to those from the above cairns.

ii) *Iron Objects*

Some fragments of iron objects consisting of two spearheads and a sword (Taylor ; 1941 : Pl. 1, a,b and c of the last row).

III. *Remarks*

No other antiquities are reported to have been found.

The Fourth Cairn

I. *Architectural Features*

i) Double cairn circle.

ii) Dia. of the inner : 7.20 m.
Dia. of the outer : 9.60 m.

II. *Excavation*

a) *Stratigraphy*

i) From the surface of the cairn to a depth of 1.20 m, loose stones and earth.

ii) Further below, gravelly earth;

Cist

At a depth of 1.95 m from the surface in the pit of gravelly earth in the cist.

The cist, north-south oriented, internally divided longitudinally into two compartments, by inserting a slab in upright position. Each compartment is roughly 2.10 m and 50 cm. At one end (probably northern end) of each compartment, is an orthostat fitted in between the side orthostats. Similarly, at the other end, but about 15 cm within from the end are orthostats fixed. These orthostats are higher than the rest and as the illustration (1941 ; Pl. II, or Fig. 6) shows, have semi-circular top edges. Thus, actually, the interior of each compartment is 1.65 m l, 50 cm b and 55 cm.

The cist was covered at the top with capstone.

Mode of Burial

Skeletal remains of one person in each compartment. The one in the eastern compartment is better preserved. It was lying on the left, the face being towards the earth and 1.55 m. The teeth in the upper jaw, intact ; its enamel being still bright (1941 ; Pl. III, Fig. 14).

The one in the western compartment, 1.30 m was thicker and stronger.

Behind the skeletal remains in the eastern compartment was a skull that appeared to have been placed on the top of an earthen vessel.

Burial Furniture

i) *Pottery*

There is only a mention of the presence of earthen vessels behind the skeletal remains the eastern compartment without any reference to their types and fabrics. Also, if any pottery was present in any other part of the tomb is not mentioned. However, the illustration shows the following types:

i) Vases with outturned or outcurved rims, concave or carinated neck, squat body and sagger or pointed base (1941 : Pl. III, Figs. 2nd and third of the row).

ii) Bowl with featureless edge, almost vertical sides and sagger base (Pl. III, Fig. 3rd in the second row).

2. *Iron Objects*

Legs of an iron tripod stand placed behind the skeletal remains in the eastern compartment.

But the illustration show a few iron objects from this as follows :

i) A small sword with curved end (1941 : Pl. I, Fig. 4 in the last row).

ii) Pieces of two long knives. (Pl. III, Figs. 5 and 6 of the last row).

Cairn B

No complete details of either the surface architecture or the stratigraphy of the cairn B, are given. Some references only to the cist of the cairn and its contents are available.

a) *The Cist*

The cist found, 3.60 m deep from the surface of the cairn, was longitudinally divided into two compartments.

b) *Human Skeletal Remains*

In the eastern compartment of the cist were the remains of one adult male 1.55 m 1 and in the western compartment remains of two skeletons of which one skull only was in the cist. The skull of the other was turned back, a very unusual posture. Taylor supposed that they were of women who were beheaded and buried as above and this would explain the absence of one skull and the peculiar posture of the other.

Above the cist, were distinct remains of four other bodies and skulls, with similar bones and portions of a few skulls of children ; not regularly disposed of as evidently pitched into the grave at random, one over the other.

(c) *The Burial Furniture*

i) Few earthen pots.

ii) Two iron objects ; a small sickle and a bill hook (1941 : p. 97).

Cairn C

No account of its excavation is given, excepting that it had a passage in the cairn packing.

Cairn D

No details about the surface architecture and the stratigraphy are recorded. The cairn had a cist containing human skeletal remains.

a) *The Cist*

Found at 2.70 m deep from the surface of the cairn.

The cist, as usual, was divided longitudinally into two compartments. The eastern compartment about 1.65 m to 1.80 m b l and 45 cm to 50 cm b and the western, 30 cm b the length being the same. The cist was paved with floor slabs five in number measuring 1.35 m to 1.49 m. At the end of each compartment, an orthostat fitted in between the side slabs, was intact (1941 : Pl. X ground plan of the cist). The capstone was also undisturbed.

b) *Human Skeletal Remains*

Two skeletons with their skulls in them in proper positions laid on each other, both facing downwards were in the eastern compartments. Another skull was placed upright in the centre of the double skeletons and with the face looking downwards. There was yet another skull placed outside the cist, on the northern side.

Of the two skeletons lying one upon the other, in the eastern compartment, the one below was of a male and the other above it of a female.

Above the cist in the layer of compact greyish earth occurred, portions of skeletons lying literally in all directions on the earth. How many have been there could not be ascertained. However, five skulls were obtained. Besides, there were pieces of others and also of childrens skulls (p. 98).

c) *Burial Furniture*

In the western compartment were found :

1. Pottery including urns.
2. Iron objects.
   i) Two arrow heads (p. 99)
   ii) A sickle.
   iii) An iron tripod (p. 100)
   iv) A sword (?) broken into two parts.
3. A perforated cornelian-bead.

On the northern side outside the cist also were a number of small pottery vessels.

Cairn E

No account of the architectural features and of the stratigraphy of this cairn, is available. The cairn had a cist.

The Cist

The cist, found at a depth of 2.70 m from the surface of the cairn, had its capstone intact. As usual it was longitudinally divided into two compartments.

The eastern compartment was 60 cm and the western 30 cm b; both being 1.45 m l. The floor was paved with slabs. Obviously the cist was oriented N—S.

a) *Human Skeletal Remains*

Three skeletons, two in the eastern compartment and one in the west, found. The upper one of the two together was placed with the face downwards and the lower one, on its left side. The single skeleton of the western compartment was thought to be of a woman.

Another skeleton was found outside and above the cist. But its skull was placed in the middle of the skeleton.

Further, above in the layer of compact earth, there were the remains of six skeletons, in the most irregular positions and the skulls of three being disconnected.

b) *Burial Furniture*

There is a mention of the occurrence of only an iron lamp (1941 : p. 102).

Excavations at Andola

Cairn No. 1

I. *Architectural Features*

i) Cairn stone circles of 5.40 m dia.
ii) Has a passage in the northern segment of the circle.

II. *Excavations*

No account of the stratigraphy of the burial given. The megalith contained a cist.

a) *The Cist*

i) Undisturbed.
ii) Oriented ene-wsw.
iii) measured 1.65 m b. x 1.80 m b. x 5.3 cm h.
iv) Divided longitudinally into equal compartments of 90 cm b. each.
v) Covered at the top with capstones.
vi) The floor, paved with slabs.
vii) The slabs, on average, 2″ (5 cm) thick.

b) *Human Skeletal Remains*

Two skeletons in each of the compartments. There in the eastern compartment were of larger size than those of the western compartment.

On the western exterior of the cist were many remains of the human bones including skull parts, small and delicate, perhaps of children.

On the top of the capstones was placed a skeleton.

Above this skeleton near the sw and were some skulls and in the other end also, about eight skulls.

Further above, in the earth underlying the cairn, a great quantity of bones in

the confused positions lying in all directions, occurred.

c) *The Burial Furniture*

On the northern and southern exteriors of the cist, a few earthen pots, large and small, were placed.

Cairn No. 2

I. *Architectural Features*

i) Cairn stone circle of 5.40 m dia. internally.

II. *Excavations*

No details about the stratigraphy of the circle is given. It contained a cist.

a) *The Cist*

The cist was intact, as usual, divided longitudinally into unequal compartments.

The eastern and the western compartments are respectively 65 cm b. and 35 cm h. both being 1.65 cm l. On the top were capstones covering the cist.

b) *Human Skeletal Remains*

One skeleton in the eastern compartment. But the skull was separate from the neck and looking north-east near the corner of the compartment. Part of the skull rested upon the bones and shoulder of the left arm (p. 52).

As found in many of the excavated cairns mentioned above, in the upper part of the pit above the cist occurred many bones "lying in all directions, some transversely, some diagonally and some direct with portions of skulls here and there confusedly" (p. 51). Remains of five skulls were collected herefrom.

Further, on a small shelf, however, of the side of the cairn, in a hollow which had been made for it an urn in perfect preservation was found (p. 52), containing light dust and some bones. Dr. Crater to whom these and other bones etc., were sent, declared the small bones as those of a guans and that a portion of the jawbone of a cairnine animal, probably of a dog had been found with the other bones.

c) *Burial Furniture*

i) Some urns and pots on the western side of the cist.
ii) A few pieces of iron, much decayed, in the same place.

General Observations on the Excavated Megaliths

From the excavated megaliths described above, it is evident that

1. there are two types of megaliths :

a) Cairn stone circles with cists, *i.e.*, cist circles.
b) Cairn stone circles without cists, *i.e.*, pit circles.

They are, in general, comparable respectively to the cist-circles and pit circles of Brahmagiri. It may be noted that the former differ from the latter in type and position of the cist in the cairn circle in the mode of burial, etc.

2. However, the surface architectural features of both the types of the Jewargi group are common. It is a stone circle, single or double enclosing a hemi-spherical heap of loose stone rubbles and earth that overlies a pit that way or may not contain

cist, cut in the hard natural soil. In the southern segment of the circle there may be a passage, oriented usually, ne-sw, formed by the two slabs set up in vertical positions in the cairn.

3. In the case of the first type, the cist at the bottom is always in the same direction as the passage above *i.e.*, ne-sw oriented. There is invariably no port-hole to the cist. The interlocking of the orthostats is neither clockwise nor anti-clock-wise. Usually, the cist consists of double compartments.

4. The mode of the burial in both the types with the exception of the one at Chikanhalli is the same *i.e.*, extended with the head towards the north, and multiple and apparently secondary. Sometimes, the skull is separated from the body and placed elsewhere. This is explained by Taylor (p. 53) as an instance of human sacrifice at the time of burials. The victim dear to the dead was beheaded and buried along, with the head placed separately. His observations requires further examination by way of thoroughly well observed data and analysis.

5. The dead was provided as usual in the other megalithic burials, with some earthen vessels, iron objects of daily use and rarely ornaments such as beads.

6. During my examination of the site at Jewargi, I got from a disturbed burial, a polished black-and-red ware deep bowl with featureless edge, externally corrugated convex body and flat bottom and a few other pot sherds. These and the pottery from the excavations in types and fabrics and the types of iron objects are closely akin to those of the well-known megalithic cultures of the other sites; Maski, Yeleswaram etc.

7. The Chikanhalli burial forms a separate class by itself, if Taylor's observations that all the pots contained calcined bones, is correct, an instance of post-cremation burial.

8. The pottery types (illustrated) from Chikanhalli also are unusual. Whether the absence of iron and of other usual types of megalithic pottery is just an accident or due to the peculiar practice of the builders or due to the economic stage of the culture to which it belongs, is a matter of further investigation, in view of the fact that absence of iron in megaliths is elsewhere noticed. (Thapar; 1957: pp. 27-28). However, usual types of pottery do occur in such burials unlike that of Chikanhalli.

9. Now, coming to the occurrence of a large number of skeletons in the most disorderly positions in the upper part of some of the megaliths, I think they do not form part of the megalithic burials at any stage, for the following reasons :

i) Its accumulation obviously due to hurried throwing of the dead by just digging and redigging the cairn and the earth below, a little.

ii) Unceremonious way of the burials.

iii) Unaccompaniment of any burial furniture.

iv) Presence of the skeletons in such confused state in the upper part of some of the megaliths only are perhaps of the people who died in large numbers owing to some epidemic disease in the nearby locality and were buried in the already existing cairn circles haphazardly in any subsequent or even of the recent times. Instances of burying the dead in modern times in certain localities in such already existing megalithic tombs thereat were noticed by me *e.g.* in Savalgi near Konnur.

7 & 8. *Pit-burials and Cairn Stone Circles : Excavations of*

The seven burials excavated at Maski according to their certain individual features, are classified into B(i), B(ii), B(iii), B(iv), and B(v). There are four burials of B(i) and one of B(iv) from the Trench. MSK-10; one each of B(ii) ane B(iii) in MSK-9, and one of B(V) which is a cairn stone circle outside the habitation area. The excavated burials are well documented and thoroughly described (Thapar; 1957). On the findings of the excavations, therefore, only certain observations are made.

General Observations on the Megalithic Burials in the Habitation Area

Pit Burials

I. The Megalithic Burials in the MSK-10.

i) The burials : class B(i) and class B(iv), as they are sealed by the bottom of the layer 9, belong to the earliest phase of megalithic culture there. It is interesting to note that no burials belonging to any of the times of the remaining larger period of the overlying megalithic culture, were found here.

ii) The burials are generally without lithic appendage. The lithic appendage of the pit 30 of the class B(iv), as clearly evident from the photograph and the drawing, appear to be feeble rather than a distinct part of the burial and as wide as the pit itself, about 2.50 m in dia. externally. Normally, in the megalithic cairn stone circle, the cairn within is so well packed and gets in the middle deeper into the upper part of the pit, as, for instance, in the MSK Meg-2 (p. 34, Fig. 7). And the burial pit is usually at the centre. But, here it is very thin and loosely lying on the top of the burial pit. And the burial pit is very near the western arc of the circle (Pl. VII) and not in the centre. Thus it appears that raising of a cairn circle over the pit is not preplanned, but due to an incipient attempt of an afterthought in an individual case. Had there been cairn stone circle for every burial, then, would not have been any place left for dwelling in the site. But the site has clear and substantial evidences of habitation after the erection of these burials.

iii) The burial pits elliptical on plan, are invariably north-south oriented.

iv) Single interment ; extended, generally articulated on an ash deposit, with the head usually towards north.

v) Rarity or absence of iron objects. Wherever present they are of most common use, such as tanged arrow-head and knife.

vi) Pottery a few or moderate in number.

II. Burials of Class B (ii) and Class B (iii) in MSK-9

(i) This site has permanently remained uninhabitated after its desertion by the 'chalcolithic' people. The burials of the above two classes dug into the chalcolithic deposit, are sealed by the surface layer. Thus their relative stratigraphic positions are unknown.

ii) No lithic appendage.

iii) In the case of burial pits elliptical on plan, east-west oriented.

iv) The interment is secondary, fractional and multiple.

v) Rarity or obsence of iron objects. The iron objects present, axe and dagger, show developed stage.

vi) Rich in pottery.

Cairn Stone Circle

The MEG-2 of B (v) type is a pit circle containing secondary, fractional burial attended with iron objects and pottery in a north-west south-east oriented rectangular pit. Unlike that of the pit circle of Brahmagiri there is no ramp leading to the pit floor. The pit is not circular and the cairn packing is very heavy.

In the earlier excavations in the same area of the site by the Department of Archaeology of the former Hyderabad State were noticed human bones with megalithic pottery (ARADH ; 1935 36 : p. 22) and two east-west oriented 'cist' burials (pp. 14-15) containing two human skeletons. The cist was made up of *small pieces* of rough stone slabs of uniform size. The cemetery (Gordon, D.H. ; 1960 : p. 190, Pl. XXXI a) exposed here, contained a large number of pot burials, two articulated extended burials one of them having four stone slabs juxtaposed in vertical positions on one side probably part of a cist. Another extended burial is covered with some elongated stone boulders set across one beside the other over the burial. The pot burials and the extended burials are very close to one another, recalling similar groups of pot-burials and extended burials in the chalcolithic habitation sites like Nevasa (Sankalia *et. al*; 1960 : pp. 23-24 ; Fig. 7, 8 a. Chandoli (Deo, S. B. ; 1965 : pp. 17-23 Fig. 126).

That these burials are most probably of the early period is evident from the four pot-burials covered with (black-and-red) ware bowls typical of the megalithic culture.

Besides, a human skeleton in crouched posture and a cylindrical terracotta object described as 'sarcophagus' (Gordon, D.H. ; 1960 : p. 190, Pl. XXXI b) were also found, the contents of which are not clearly evident.

Excavations of the Megalithic Habitation Site at Maski:

Megalithic Period

The excavations in the habitation area (Thapar, pp. 25-26) revealed a sequence of three cultures, the chalcolithic, the megalithic and the early historical, exactly similar to that of Brahmagiri. But there is a distinct break between the chalcolithic and the megalithic cultures. No objects of the neolithic culture suggesting overlap, have been found from the overlying megalithic culture. On the other hand there is a thin overlap between the megalithic and the early historical.

Six pit burials belonging to "the first occupation of the site by the megalithic people of period II" (p. 25), were noticed.

The pottery are in three fabrics: the black-and-red ware the black ware, and the red ware, and in types as well, are similar to those of Brahmagiri and of other megalithic sites like Sanur, etc. The types are : different types of bowls platters, vases, dish-on-stand, jars etc. (Figs. 14-24).

The fabrics of the pottery, from the habitational deposits and from the burials, are the same. Besides, there are some common types between the two and also among the different types of burials themselves. But there is no one particular type

common to all the burials while a few are common between these and the others (p. 50).

In all 32 iron objects (pp. 115-119), 10 from the burials and 22 from the habitational deposits, were got. It may be noted that just as in megalith V (a cist circle) at Brahmagiri (Wheeler ; 1947-48 : pp. 191-192) there were no iron objects in the burials B(iii) and B(iv). But the burial B(v) yielded five iron objects and the rest from the burials B(i) and B(ii).

The types of iron objects are : lance from B(v) axe from B(ii), a knife blade and tanged arrow head from B(i), a chisel, a tanged arrow head, a ferrule, a dagger blade and a sickle blade from the habitational deposits.

The other objects from the habitational deposits are :

i) four copper objects including a bangle piece (pp. 114-115).

ii) beads of different materials : white quartz, coral, lapiz lazuli, paste, cornelian (one of the cornelean beads being etched) and terracotta (pp. 104-109).

iii) bangle pieces of shell, vitreous paste and glass (pp. 111-114).

iv) Skeletal remains of domestic cattle and domestic sheep (125-128).

It is noteworthy that bones of the domestic sheep were found in association with human skeletal remains (p. 128) from the pit, 28 of the megalithic burial class B(i) and from the pit 2 of the burials B(ii).

The Pit-burials of the Manvi Group :

The disturbed burials of the Manvi group are of the types of B(ii), B(iii) and probably of B(v) of Maski.

As mentioned in Chapter V, one of the disturbed burials (Pl. XXVI ; 2) was examined at Gorkal. It was evidently pit burial probably of the B (v) type of Maski Whether it had a cairn stone circle on the top originally, is not evident, as it is already disturbed.

On clearing the earth from the sides of the pit a red ware pot protruding from the section of the disturbed burial the pit was found to have yet six earthen vessels and a small terracotta trough (or small sarcophagus without legs?). The pit-line could not be clearly made out. It was cut in the neolithic habitation site which is note worthy. The earth filling the pit also is ashy containing pot sherds of the neolithic grey ware. The pit is found to be roughly 75 cm deep from the surface.

There were six pots : three small vases of red ware, more or less of the same size, two big vases of red ware approximately of equal size and a funnel shaped lid of black-and-red ware, besides a terracotta trough of shallow depth (Pl. XXVI ; 2). The trough is unslipped, dull grey and its one end is missing.

The trough was laid on the bed of granite chips and was exactly north-south oriented. While one pot was beside its southern end and the rest were near the south-eastern corner. One of the small vases was placed on the mouth of another big vase kept upright. The other vassels were in slanting positions.

The vassels and the trough were filled with earth. No bones and iron objects were found in any of them. It should be recalled here that the burial was already a disturbed one.

Pottery Types from the Habitation Sites at Rajalabanda and Gorkal

The pottery from the above sites are in three fabrics : the black-and-red ware, the all black ware and the red ware.

In fabrics and types, they were closely akin to those from the above burial on the one hand and of Maski on the other.

Pit-burials of the Gajendragad Group

The megalithic graves of the Gajendragad group are probably similar to those of B (iii) and B (iv) types of Maski. Two disturbed burials, one in Gaudageri-Unachgeri and another in Rajur area were examined. They are described below.

Megalith I (At the Foot of the Someshavara Hill) in Gaudageri-Unachgeri Area

This is at the southern end of the north-south oriented channel at the western foot of the Someshavara Hill, exposed in the section looking west. At the top edge of the section, before the examination, were seen a few stone rubbles to a depth of 40 cm from the surface. A broken skull with two teeth, placed in the north-south direction and fragments of the long bones here and there, more or less in the same level, at 55 cm deep, were partially seen in the section. A close examination of the section revealed the pit-line. The pit was found to be 1.30 m w. The earth of the pit was reddish dark brown sandy with small pieces of stones, while the earth surrounding the pit was more reddish and stony. The skull was found to be in the middle of the section and about 50 cm from either of the northern and southern walls. The section, about 70 cm from the surface to the floor of the channel is composed of three layers. The top layer, 40 cm thick, consisted of stone rubbles, brownish sandy earth mixed with small pieces of stones of granite and sandstone. The middle layer, 15 cm thick, was dark brown sandy more compact earth with one or two rubbles here and there. In this layer jet out the skeletal remains including the skull mentioned above. The bottom layer, 10 cm thick, upto the bed of the channel, was light brown sandy earth mixed with whitish stones in small pieces and more compact.

In the middle layer was a bundle of the fragmentary long bones, an iron sword or dagger, an iron knife, all in the northeast-southwest direction, a black-and-red ware funnel shaped lid and a black-and-red ware vase containing a few bones, placed on one side of the bundle. The skull seen in the section had to be removed lest it would fall down owing to the removal of the earth on the other sides also, before the entire complex visible at this stage could be photographed. The rear part of the skull was intact. Further removal of the earth revealed another two big pots beneath the above vessels, bones and iron objects (Pl XXV; 2). Surrounding the pots were another similar big pot with the bottom broken, a platter, three dishes and a jar. On the floor of the pit was a stone slab of irregular shape. Natural soil was struck at 1.10 m deep.

The corresponding part of the pit, exposed in the opposite section of the channel was also examined. Neither the remaining part of the pit line could be recognised nor any burial furniture or bones were found here. It appears, therefore, only a small part of the pit now measuring 1.30 m l, 0.40 cm w and 0.65 m deep in area, was cut away by the channel. A very few pottery and bones, if any, in this part of the pit, were

destroyed. The pit, originally, therefore, measured 1.30 m l, 1.10 m wide and 1.10 m deep.

The contents of the burial are :

i) Iron objects.
ii) Pottery.
iii) Skeletal remains.

i) *Iron Objects*

There are two iron objects, dagger and a knife, in extremely disintegrated condition. Even a careful and delicate touch would make them powdery.

1. The dagger (Fig. 19; 1, 3) laid in N 70—E direction in the midst of the bones, is 60 cm l. Its hilt end is tanged for insertion into the socket of the hilt.

2. The other is the middle part of double edged knife. About 15 cm wide (Fig. 19; 1, 4).

ii) *Pottery*

In all there are ten pottery vessels of two fabrics : the black-and-red ware and the red ware. Many of them have encrustation of lime on the exterior. None of them has graffiti marks. The types are dish, vase, funnel shaped lid of black-and-red ware and jars, vases, platters of red ware, analogous to MSK, Fig. 19; B(iii), 10. Fig. 17, B (iii) 5, 7, Fig. 18, B (iii) Fig. 19, B (iii) 11 etc. They (Pl. XXV; 2, 3) are illustrated elsewhere (Sundara; 1972: pp. 119-125).

About 4.60 m south of the above burial, is exposed in the section of the channel looking east, a jar of red ware in vertical position, broken across, containing fragments of human bones and black-and-red ware bowl. The pit line was not clearly distinguishable. The upper part of the pit had been disturbed.

On examining the pit, no other pottery vessels or iron objects were found in it. The human bones in the big pit included a fragmentary skull.

iii) *Skeletal Remains*

These included a fragmentary skull and pieces of long bones. They are being studied.

Megalith II at the Western Foot of the Gajendragad Hill in Rajur Area

This (Pl. XXV; 2) and other burials are exposed in the sections of a channel cut along the foot of the hill to direct the course of rain water lest it should wash away the cultivated fields below. All are in various states of destruction.

The one examined, called here Megalith II, was exposed in the section facing east. Only a globular bodied, round bottomed vase of red ware in the cross-section of pit was jetting out. It was found 60 cm deep from the surface.

The top of this burial had no surface indication such as cairn or a stone circle. The pit line was indistinct. The earth of the pit was exceedingly compact and sandy, with small white quartz stones.

On clearance of the earth, in the vase exposed and surrounding it, it was found to contain its rim fragments, a fragmentary skull and a few pieces of bones and also

small pieces of iron object of indeterminate shape. The mouth of the vase was closed by inserting the mouth of another vase of red ware, of lesser size, into the former. To the right of the big vase, just above its shoulder and a little behind, was another vase of red ware, in upright position. Beside the vase, on the left, was placed a small vase of black-and-red ware on the floor of the pit. A little above the vase were two tulip shaped black-and-red ware bowls.

The pit was 1.10 m wide, 1.20 m deep and probably 1.10 m l.

The iron objects, the pottery and the human skeletal remains from the above burial are enumerated below.

i) *Iron Objects*

There are two small pieces of iron objects of indeterminate form.

ii) *Pottery*

The pottery are in two fabrics: the black-and-red ware and the red ware similar to those from Megalith I, referred to above.

There are three vessels each of the two fabrics : tulip shaped bowls, vase of the black-and-red ware and a jar and a vase of the red ware.

Megalithic Habitation Site on the Gajendragad Hill

The top of the Gajendragad Hill is a vast plain field where the medieval fort with its tanks and magazines exist, commanding a panoramic view of the village Gajendragad, at the foot and the plain fields to a very great distance. A flight of steps is provided from the village along the slope of the hills to the fort. On either side of the flight of steps are water courses in the sections of which are found megalithic pot sherds jetting out. They are probably remnants of the megalithic burials and situated in between the two groups of the megalithic burials described above. West of the fort in the extensive plain fields, are also found traces of megalithic habitation to an extent of about 8 to 10 acres. The site bearing S. No. 284 is under cultivation. The surface earth is sandy, mixed with small fragments of sandstone, and faintly ashy coloured. Megalithic pottery of the usual red ware and the black-and-red ware and types mostly in worn out condition are thinly scattered all over the site. The thickness of the cultural debris as found in some of the sections of the pits in the site is from 40 cm to 60 cm.

Megalithic Pottery from the Neolithic Habitation Sites at Hirehal, Kurgovinkop, Kittur and Kallur

Megalithic pottery occurs in the neolithic sites at the above places. They are in types and fabrics intimately akin to those from the megalithic graves of Unachgeri-Rajur area near Gajendragad. Some black-and-red ware pottery is highly polished. Pottery with graffiti are rather frequent. We have already noted that no graffiti marks are found in the pottery collected in large numbers from the burial and habitation sites in the Gajendragad area.

The pottery types from these sites are : the black-and-red ware connoid, tulip shaped bowl, hemispherical bowls, vases, red ware ring-stands, large vases and coarse red ware vases and basins analogous to the respective types of Maski.

Megalithic Remains at Watgal

About 40 km north-east of Maski, in the ancient site at Watgal (Munn ; 1934 : pp. 121-135) along the northern and the southern sides of a granite hill (S. No. 233), pottery is profusely scattered all over the area. Medieval pottery, early historical including the russet coated white painted ware, megalithic and neolithic pottery, polished and ground neolithic tools, microliths such as parallel-sided blades, crescents, etc. of chert and chalcedony, as also the black-on-red painted pottery analogous to that of the chalcolithic Nevasa, Chandoli, usually designated as 'Jorwe ware', chalcolithic black-and-red ware (Sundara; 1968: p. 13), are spread in various proportions all over the site. On the top of the hill are the remains of houses and pottery of the medieval period. Besides, especially on the southern side of the hill, occur lumps of iron slag in plenty, fragments of tuyere with blistered surface suggesting as iron smelting activity. Thus, in extent and cultural potentialities, the site is next to that of Maski or Brahmagiri.

The double stone circle (Pl. XXV; 1) is in S. No. 196 near the site.

In the course of the explorations of the site I could locate heavy concentrations of the black-on-red painted and the plain red ware pottery having affinity with the Jorwe pottery, the chalcolithic black-and-red ware including the white painted black-and-red ware in S. No. 197 and of the megalithic pottery in S. No. 198 and partially in S. No. 214 which has the early historical remains also. The southern strip of the site from the hill is essentially neolithic. S. Nos. 196, 197, 198 and 214 are under cultivation. Probably these concentrations seem to suggest the foci of the respective cultures in this extensive site. I collected chalcolithic pottery including the painted ones and also two white painted black-and-red ware sherds etc., from S. No. 197 and megalithic pottery from S. No. 198.

The megalithic pottery are of the black, the black-and-red and the red wares, in plenty. Pottery, polished and merely slipped, in all the wares ; the coarse red ware probably with wash only are the essential varieties.

The pottery types are : funnel shaped lid, hemispherical bowls, shallow dish with flat bottom or with featureless edge and carinated body ; vases with outturned, featureless edge, cairnated neck and expanding shoulders of the black-and-red ware ; and platters with internally thickened edge ; dish-on-stand ; vases with everted edge, oblique sides, carinated body, sagger or rounded base ; big vases with externally thickened and single grooved rim and expanding shoulders sometimes with incised rope design on the external edge of the rim ; basins with heavily collared rim etc., of red ware.

Two potsherds in the collection have graffiti marks

Megalithic Cultural Remains in the Area of Shahapur Group of the Megalithic Sites.

Further north of Watgal in the area of Shahapur group of megaliths, no megaliths are excavated, nor pottery etc. from the megaliths are reported. I did not come across any disturbed burials giving out pottery etc. Thus the characteristics of the material cultural equipments of the megalithic builders, were not known. But with the discovery of three megalithic habitation sites in Vibhutihalli, Rakhamgeri and

Tadbidi near Shahapur, some idea about the cultural equipments and their affinity with the other known sites, can be had.

The Megalithic Habitation Sites in Vibhutihalli, Rakhamgeri and Tadbidi

About a km north-west of the village on the northern side of the bund of the Amaravati tank, is a small gorge in the hills, locally known as Ankana Kolla. The cultivated fields at the foot of the hills in which a nala from the gorge runs, is locally called Ankana Kollada Hola, bordering the bed of the tank. In these fields, to an extent of about 3 to 4 acres, is extremely ashy earth mixed with pottery and lime encrusted bone fragments in plenty suggesting an ancient habitation. In the section of the nala, the thickness of the debris is roughly about 1 m. The megaliths reported by Taylor were to the east of this site about 200 m away.

This is single culture site. The pottery comprises the black-and-red ware, the red ware and the black ware. Some have high burnished and polished surface. The pottery in types and fabrics, is intimately akin to those of Maski megalithic.

Rakhamgeri Site

South of the village about 200 m further south-west the tank, at the foot of the hills is a megalithic habitation site. About 100 m away, nearer the bed of the tank is an early historical mound partly disturbed for earth when the bund of the tank was repaired. From the mound was picked up a big piece of rouletted black-and-red ware dish, besides some pottery of this culture.

The habitation site, about two acres in area, is in the cultivated field. The soil is very ashy in contrast to the greyish brown earth of the fields around. Pottery of black-and-red ware, and red ware and bones highly encrusted with lime, are plentiful. In types and fabrics the pottery is similar to those of the site at Vibhutihalli which is only about 1.50 km to 2 km further south.

Within a short distance, east of the site, are a few menhirs, the remnants of stone alignments noted by Taylor.

Tadbidi Site

About 10 km east of Shahapur, in Tadbidi, is an ancient habitation site with the remains of neolithic and the megalithic settlements. Locally the site is known as Bayalu Hanamappana Hola, situated in the plains between two granite out-crops. In a part of the site is a sculpture of Hanuman in worship, in the open field. It is therefore called Bayalu (open plain) Hanamappa. The site is about 1.50 km east-south-east of the village.

The site is about two acres in extant, ashy, scattered profusely with neolithic grey ware pottery of Maski fabric, the megalithic black-and-red and the red ware pottery, fragments of bones highly encrusted with lime etc. In the southern part of the site at the foot of one of the granite hill, is a remnant of probably an ash mound of scoriaceous ash. The megalithic pottery in types and fabrics are closely akin to that of Vibhutihalli and Rakhamgeri.

Megalithic Habitation Site at Hire Benkal

In Hire Benkal, there is a megalithic habitation site of the top of the hill spot called Durgad Dadi mentioned already above. Two disturbed megaliths apparently

of the pit-circle type are found at the foot of the hill. From the habitation site and from the disturbed burials, some pottery were collected. The pottery is, in fabrics and types, exactly similar to those of Brahmagiri on the one hand and of Maski on the other.

From the disturbed burials were got pieces of a tulip shaped bowl, a bowl with internally bevelled edge and externally grooved, vases with outturned rim of the black and red ware, outturned rims of thick jars of coarse red ware.

Excavations of Pit-circles in the Deccan Trap Zone

The only type of the megalithic burials known so far, in this zone is the pit-circle. No megaliths in this area are excavated. It is, therefore, not known if these pit-circles are similar to those of Brahmagiri in the mode of the burials and in the characteristics of the burial furniture.

However, from some of the chalcolithic sites I could pick up some megalithic pot-sherds. The chalcolithic sites (Sundara ; 1968 : pp. 12-14) with sprinkling of megalithic pottery are :

i) Kumashi.
ii) Hire Bevanur.
iii) Masali. (Kd)
iv) Ingalgi.
v) Hingani.
vi) Sadalga.
vii) Kallol.
viii) Kudachi.

Excepting the last two, in the other sites, chalcolithic black-and-red ware pottery is also found.

No megaliths are found near any of these sites. As mentioned above, there are four stone circles at Chik Mannur and two cairn stone circles at Madnahal.

The red ware pottery from Hingani and from Masali (Kd) are rather in a considerable number. But in the other sites, they are extremely sparse.

About 55 potsherds including 20 rimsherds, some fragments of highly disintegrated iron pieces including a cylindrical tube, were collected from a part of the site at Hingani. The pottery is mostly of red ware. Some have polished jet black interior and some others are without any slip in the interior. The slip is chocolate red, not deep red and burnished. The core is medium to fine partly black and partly dull brick red and of medium to thick in section. In the collection, there is only one black-and-red ware sherd.

About 25 sherds have graffiti marks. The symbol mostly is a vertical line with two or three oblique lines, going downwards from the vertical line, two on one side and one on the other, like a branch of a tree.

The representative types (Fig. 20B) from the collections are hemispherical lid (1), elongated lid (connoid ?) ( ), hollow ring stand (3), vase (4), all in red ware and shallow dish in black ware.

Iron Object

Fragment of a highly corroded cylindrical hollow tube (Fig. 19 ; I, 2).

The other pieces are of indeterminate shape.

Megalithic Pottery from Masali (Kd)

The pottery is found scattered thinly all over the site. In one of the black and red bowl (Fig. 20A, 5) a small piece of bone was found still adhering to the sides, suggesting undoubtedly its sepulchral function.

The collected pottery are of black-and-red ware only. While some of them are black-and-grey ware but having distinct glossy surface the others are black-and-red. All of them are of medium to fine black core and medium to thin in section. The slip is bright and burnished and found on both the sides.

The representative types (Fig. 20A) from the collections, are deep bowls (1, 2, 4 & 5) and shallow bowls with rather pointed or sagger base.

Round or Oblong Barrows : Excavations of

No megaliths of this type are yet excavated. One of the round barrows at Tallur was dug out some time ago by the local people while cultivating their fields near it. From it were recovered pottery, iron objects and 21 conch shells. Unfortunately, the pottery and iron objects were destroyed in the course of the digging. The conch shells were somehow collected intact and preserved by the Desai of that village. When I visited the site I collected a few potsherds and shapeless iron pieces from the disturbed megalith. The Desai was very kind to part with the conch shells to me.

The pottery are of two fabrics ; the red ware and the black and red ware similar to those from Guledgudda on the one hand and those from Maski megaliths on the other. In my collections of the pottery there is only one rimsherd of a red ware vase. It is externally thickened with an undercut, single grooved and with incised rope design. The neck is concave and the shoulders are expanding. The core is gritty coarse partly black and partly dull red and the section, thick. The slip is slightly burnished (Fig 18 ; 7).

One of the pieces of iron, appears to be part of a double edged knife blade.

The conch shells (Pl. XXVII), 21 in number, are more or less, of the same size. Every one of them is perforated on the body or near the bulgeous end for passing a string through it. Evidently, a garland of these shells was deposited with the remains of the dead who was probably a religious head distinguished with the garland.

From a disturbed round barrow, of Guledgudda I collected two lids, two dishes a tulip shaped bowl and a vase (Pl. XXVI ; 3). One of the lids, the two dishes and the tulip shaped bowl, are of black and red ware. The other lid and the vase are of all black ware and red ware, respectively.

In fabrics and types, they were closely akin to those of Maski megalithic.

Pottery from a Disturbed Round Barrow in Nagvand

From a disturbed round barrow in Dyavar Ere area of Nagvand, I collected some potsherds including a few rimsherds. In types and fabrics, the pottery have no parallels from any of the excavated megaliths.

The pottery is in three fabrics : the light pinkish dull red ware, the black and red ware and the all black ware.

The light pinkish dull red ware, like the neolithic pinkish red ware pottery of Maski fabric is of coarse gritty blackish or brick red core, usually exteriorly slipped and burnished. Occasionally micaceous particles are found in the slip. The thickness is either uniform or uneven and some of them were evidently hand made. On the interiors of some sherds regular striation marks are present. The exterior of the shoulder part of some vases, is either rusticated or pared a feature common in the neolithic pottery, but not found in megalithic pottery.

The types are vases with outcurved rims, bowl, dishes etc., more akin to neolithic forms.

The black and red ware and the all black ware are usually of fine black core occasionally slightly micaceous, thin section and of uniform thickness. The slip is well burnished and sometimes polished. The vessels in this fabric are generally small to medium in size.

The representative types are described elsewhere by me (Sundara ; 1972).

Ancient Sites at Hallur and Kamalapur : Excavations in Hallur

In Hallur, on the left bank of the Tungabhadra, Nagaraj Rao (1964 : pp. 59-65) discovered neolithic habitational remains and also a kind of white painted black and red ware pottery unusually in some considerable number, in a previously noticed ancient site with mudfort of the medieval period. In particular, the white painted black and red ware pottery apparently, was comparable to the similar pottery from the Harappan levels at Lothal and from the chalcolithic phases of the Banas and Narmada valleys (Sankalia ; 1962 : p. 77-82). But in this region in the neolithic levels but for the occasional occurrences (Nagaraja Rao et. al ; 1965 : pp. 51-54) this pottery is not usually found. And in the megalithic cultural phases the black and red ware pottery does not generally have white paintings. Thus the pottery of the site at Hallur, appeared to have some significance. In order to know the cultural significance and its stratigraphic position a small scale excavation of the site was conducted in February-March 1965 by Nagaraja Rao on behalf of the Karnatak University, Dharwar and the Deccan-College Research Institute, Poona. I, as a Research student of the Deccan College participated throughout in the excavations. The report of the excavations is published (Nagaraja Rao ; 1971).

In Kamalapur which is only about 2 km south-west of Hallur, I noticed an ancient site with neolithic habitational remains such as grey ware pottery of Brahmagiri fabric, neolithics etc., as well as black and red ware pottery, similar to that of Hallur.

I collected pottery in my surface explorations from the above two sites. In the collections from Kamalapur, is a white painted black and red ware potsherd.

Some Observations on the Excavations at Hallur and on the Site at Kamalapur

The excavations at Hallur revealed that

i) the white painted black-and-red ware pottery is essentially of the Early Iron Age overlapping with the neolithic culture in the chalcolithic stage.

ii) As shown by me elsewhere (Sundara ; 1970) the fabrics and types of the

pottery considerably differ from those of the megalithic culture as known at Maski, Brahmagiri.

iii) A few typical megalithic pottery types though found, are very small in number.

iv) The black and red ware pottery with white paintings are proportionately very small in quantity.

v) The iron objects, too, are comparatively very small in number ; and

vi) They are of a few and simple types mainly for hunting economy.

vii) The floors of the houses were plastered with lime.

viii) Rice and ragi formed part of the food of the people of this culture.

ix) The beginning of this culture, according to the C-14 determinations, is roughly from 900 B.C., if not earlier.

Menhirs and Stone Alignments

One of the menhirs of the stone alignments at site III in Piklihal (Allchin ; 1960: pp. 18-19) was excavated. A ten foot square was sunk round the menhirs down to the natural murram throughout. Many shallow depressions of 15 cm to 23 cm deep noticed in the surface of the murram, contained megalithic black and red ware rim sherds of vases.

Allchin thinks that these depressions were due to the erection of the menhirs there.

The menhir sunk to a depth of about 45 cm was packed with small pieces of granite.

On the basis of the occurrence of the megalithic pottery in the depressions Allchin (p. 19) thinks that the stone alignment is contemporaneous with the megalith building period, there.

Two menhirs (Thapar ; 1957 : pp. 37) at Maski were excavated. They were found to have been raised on the present surface. They had packing of stone pieces of the bottom to hold them firmly. No other remains or burials were found associated with them.

Thus the excavations of the menhirs in Piklihal and Maski revealed that they were non-sepulchral.

Irregular Polygonal Chambers and Rock-shelter.

Examples of these two types are not so far investigated to ascertain their nature and function.

PART IV

ASPECTS OF THE MEGALITHIC CULTURE IN NORTH KARNATAKA : A CRITICAL REVIEW

8

MEGALITHIC TOMB TYPES OF NORTH KARNATAKA, SOUTH INDIA AND OUTSIDE : COMPARATIVE STUDY

Preliminary Remarks

In the last five chapters we have examined all the known megalithic tomb types in North Karnataka against the geological environmental background, in their several aspects such as the morphology, the sepulchral character, the features of the burial furniture, and the pattern of distributions.

Now, before an estimate of the culture represented by the tombs is made, it is necessary to know whether the culture characterised distinctively by the rough tomb building tradition and the use of iron and the black and red ware, is a local development or by itself an intrusion from outside. Secondly, the extent of this culture, in space and time, should also be defined. From this point of view, it should be examined whether evidences pertaining to this culture are found outside the region under study.

It is already briefly reviewed at the inception of this study that megaliths datable from the neolithic times and onwards, have been found in different parts of the world. South India and the Deccan including North Karnataka are very rich in megalithic remains. Excavations of several megaliths in different parts of the Peninsular India have clearly demonstrated that they are broadly of one complex with some regional variations which are but natural in view of the vastness of the land and her varied physiography. Also scholars have already pointed out the possible affinity suggested by the port-hole, between the megaliths of South India and of Western Europe.

Thus the tomb-building tradition is a complex problem and of very wide extent in time and space. It is therefore recalled here that a thorough study of the megaliths of each region in the Peninsular India is necessary ultimately to get a comprehensive picture of the culture as far as possible, there.

In the light of these observations, the extent of the similarities and the differences between the various types of megaliths of North Karnataka and of other parts of South India and the Deccan on the one hand and of Western Europe on the other should be noted. A comparative study of these megaliths is therefore attempted below.

Before the comparison is made, it is necessary to know about the present state of knowledge available about the compared, in order to be precise and cautious in understanding the outcome of the comparison.

No full and thorough account with appropriate, intelligible illustration of all the megaliths explored and examined before Wheeler's excavations are available. Secondly, regarding the terms describing megalithic types, used in several reports are vague and general. In most of them it is simply mentioned that megaliths or cairns or prehistoric graves or stone circles were discovered. From such general statements on the sites, often without minimum necessary details no types or their morphological character can clearly be made out. A cist may stand for a cist with or without port-hole or dolmenoid cist. Orientation of the port-hole or the presence of a passage approaching the port-hole like that of the cist-circles of Brahmagiri, is rarely mentioned. Of late, regarding the use of terminologies with varying definitions in the earlier reports Krishnaswamy (1949 : p. 35) has given several clear instances.

Krishnaswamy (pp. 35-45) after an extensive and systematic survey of megaliths in Chingleput, Pudukkottai and Cochin areas, made a brilliant classification of the types on a scientific basis, defined the terminologies to be used for these various types and described them accordingly. Some reports of the explored and excavated megaliths at Porkalam (Thapar, 1952 : pp. 21-35, Banerjee and Soundara Rajan ; 1959 ; pp. 41-43), in Cochin area (Sharma, Y.D. ; 1956 pp. 93-116), at Kunnattur (IAR ; 1955-56 : p. 23, 1956-57, : p. 31-34 and 1957-58 : pp. 37-38), Souttoukeny (Casal, 1956), Nagarjunakonda (IAR : 1956-57 : p. 36 : 1957 : 58, p. 5, 1951-59 : p. 6 and 1959-60 : pp. 6-9), Jadigenahalli (Seshadri : 1962), Yeleswaram (Waheed Khan ; 1963), Pochampad and at Paiyampalli (IAR ; 1967-68 : pp. 29-30), either fully or briefly with illustrations are available. Recently, H. Sarkar (1966 : pp. 37-74) has studied the megaliths of the lower Krishna basin. For the other sites of South India and the Deccan earlier reports are the only source of reference.

Finally, the sites referred to below for comparison are not region-wise but type-wise in order to understand the distribution patterns of the various types in relation to those of North Karnataka. At the same time, some sites are repeated under more than one type as they have more than one type of megaliths. This has given an idea about the diffusion and contact of the various traditions in certain zones.

As the sites with megaliths of two or three types in the other parts of South India are so numerous comparable to the respective types of North Karnataka, only some important sites serving the purpose, are referred to. The sites are grouped in a particular manner on the basis of the contiguity of the regions, in the case of some types.

For the sake of comparisons the megalithic tomb-types in North Karnataka may be grouped as follows :

1. Passage chambers (of the types found in Konnur, Kaladgi and Terdal) and small square chambers.
2. Port-holed chambers of the type found in Brahmagiri.
3. Port-holed chambers of the types found in Rajankolur and the Area B in Hire-Benkal.
4. Oblong cists including dolmenoid cists and cist-circles.
5. Pit-burials.
6. Pit-circles.
7. Round barrows.
8. Stone Alignments and Menhirs.
9. Irregularly polygonal chambers.
10. Rock shelter caves.

It may be noted that port-holed dolmenoid cists with passage found in Aihole-Hagaratgi area have no parallels outside North Karnataka.

1. Passage Chamber Tombs

The four sub types passage chamber of the Konnur type, the passage chamber of the Greek or Latin Cross type, the passage circular chamber and the passage chamber of the Kaladgi type are found in large numbers in the zone of the sedimentary rocks of the Kaladgi series and sparsely in the zone of the Bhima series and still small in number in a part of the granitic-gneiss zone of the Lingsugur Tavargere area. They are spread in east-west direction.

It is noteworthy that none of these types is found in any other part of the Deccan and South-India, and thus are unique in South India like the topi-kal and Kudai-kallu of Kerala which are not found elsewhere.

However, from Gajjalakonda, Dist. Kurnool (Longhurst ; 1914-15 : pp. 39-41) a cist divided into six compartments is reported to have had a passage on the south. At Kollur (Garstin, J.H. ; 1876 : pp. 159-60), Dist. North Arcot it is reported that "the entrance was by means of a space about a foot wide where two of the vertical stones did not join". It has also a port-hole in the eastern orthostat, and thus is different from the above.

In Sanur, the excavated Megalith 3 (Banerjee and Soundara Rajan ; 1959 : pp. 12-15, Fig. 1 Pl. XI and XII) a dolmenoid cist, has a short passage. The orthostats of the chamber are undressed, rough boulders, like that of the megalith with a fore court in Piklihal) Pl. XIX ; 3). But the entrance to the chamber approached by the passage, unlike that of the passage circular chamber of the Terdal group, is closed. The passage is oriented eastwards. Thus it is nearer to the port-holed dolmenoid cist-circles of Hire-Benkal but with one difference : there is no port-hole in the orthostat approached by the short passage for the obvious reason that the orthostat approached by the short passage for the obvious reason that the orthostat is a boulder and not a slab and can be slightly pushed forward or backwards, as and when access to the interior of the chamber is needed. If this observation is correct, then there is no distinct passage chamber of any of the types found in North Karnataka, outside the region. The tombs in Mamandur (Ramachandran, K.S., 1970. Illustration on

the jacket cover) seem to be similar to those of the Kaladgi type. As details about the former are not available, at present, comparison is not possible.

Small Square Chambers

This type is not usually independently found, but always in the midst of and sometimes in association with the other types of megaliths : passage chambers or port holed chambers of the Brahmagiri type.

Elsewhere, in Brahmagiri small square chambers enclosed in small circles around Megalith X are found (Wheeler ; 1948 ; Pl. LXXXV, A and Fig. 6). In Pulney in the midst of the dolmens within the enclosures are small squarish chambers covered with capstones (Anglade ; 1928 : pp. 7-9, Pl. V b.)

2. *Port-holed Chambers of the Brahmagiri Type*

We have noted that the cist-circles at Barahmagiri are similar to the port-holed dolmenoid cist-circles of Hire-Benkal. Not far away from Brahmagiri further southwards are two sites with cist-circles, Talya and Turvanur in the Dist. Chitradugra (Seshadri; 1960 : p. 1. ARMAD; 1947-56 : p. 36). It is already noted above that Rayadurga, Galapalli, Mallapura, Mudheguloor and Addaguppa, Mudigallu and Nayakaneri etc., in the Tks. Rayadurga, Dharmavaram, Kalyandurga, Dist. Anantapur with extensive megalithic sites having the above two types mainly, are near to one another and to Brahmagiri and including Hire-Benkal form an extensive nucleus of the megalithic culture in this part. For the sake of convenience all these sites in view of their contiguity and having the port-holed cist-circles of the Brahmagiri type as the dominant type, may be clustered into one group and called here the Brahmagiri group. Further eastwards of this group, in the Dist. Cuddapah, a few localities with the sites having the above two types, are so far known : Palagiri, Vonlimitta etc. (Wheeler; 1948 : p. 306); still further eastwards, in the coastal Dist. Nellor, so far no megalithic site has been reported. Thus in the light of the present evidences, the Dist. Cuddapah seems to be the eastern peripheral zone of the Brahmagiri group.

About 100 km south and south-east of Brahmagiri group, is another important nucleus of this type, comprising the southeastern part of Karnataka, the southern strip of Andhra Pradesh and north-western part of Tamil Nadu. This zone includes the Dist. of Bangalore and Kolar (Karnataka), Chittor (Andhra Pradesh) and parts North and South Arcots. Kolar region appears to be the focal point of the culture where a number of sites (Seshadri; 1960 : p. 1) have been noticed, most of them being very extensive with hundreds of port-holed cist-circles of the Brahmagiri type in Bangalore-Kolar area and also chambers with no port-hole of Hire-Benkal type in Chittor, South and North Arcot areas. Especially, the sites at Garudanapalya, Gudibanda and Perisandra, deserve mention. About six sites each from the Dist. Bangalore and Chittor and some sites in South and North Arcots (Alexander Rea; 1903-4 : pp. 53-54 IAR; 1955-56 : p. 27 1958-59 : p. 71 1960-61 : p. 63 1961-62 : p. 26. Richards, F.J. 1924 pp. 157-165. Branfill, B.R. ; 1880; 8-10) are so far reported. Savanadurga and Iralabanda respectively from the first two Districts and Kollur, Devanur and Odugattur from the last are particularly noteworthy. This group may be called the Savanadurga group as the type is well represented from the site of that name.

Megaliths in many sites north and east of Savanadurga such as Sonnapanahalli, Koramangala, Banavali, Bellandur, Maragal, Mashalli, Garudanapalya, Avathihalli and Koligudda and others (Seshadri; 1960: pp. 1-2) all in the Dists. Bangalore and Kolar, are of the Brahmagiri type. In Maragal and Managondanahalli (Seshadri; 1956: p. 60), cist-circles of the Brahmagiri type as well as pit-circles exist side by side. One of the pit-circles excavated in the latter yielded as huge coarse jar of thick wall with applique chain like design round the neck and mat impression on the narrow bottom. (Pl. XXXI).

In Iralabanda (Branfill; 1880 : pp.8-10) one of the chamber tombs has three circles formed by slabs with their top edges being semi-circular and rectangular alternately.

There is a port-hole in the upright of each circle exactly in alignment with that of the port-hole in the eastern orthostat of the dolmenoid cist. Erection of an upright with semi-circular top edge on the outer side of a dolmen in the central group of Hire-Benkal, is already mentioned. It is obviously the remaining part of an enclosure formed by vertical slabs with semi-circular rectangular top edge.

3. *Port-holed Chambers of the Rajankolur and Hire Benkal Types*

Chamber tombs of these types are found in the Western Ghat region comprising the Dists. of Hasan (Mackenzie : 1873; pp. 7-10) Coorg, (Cole, R.A.;1868). Chikamagalur (Sundara G.R.; 1969 : p. 1) South Kanara (Guru Raja Bhatt; 1969)Mysore (all in Karnataka) and of Nilgiris (Breeks, W.J; 1837 : pp. 72-110) Coimbatore and in the Western parts of the Dist.Tiruchirapalli and Madurai (Anglade 1928). This in fact is a very big group of megalithic burials. There are about thirty two sites in this part with the chamber tombs of the two type of which the Pulney hills, are very well known. This group may therefore conveniently be called Pulney group. But in this group it is not known clearly if port-holed cists or dolmenoid cists with passage occur i.e Brahmagiri type occur.

In Coorg area (Cole,R.A. 1868 : pp. 151-155, 243-245 and 1869 : pp. 54-59 and 184-186) also, the dolmenoid cists have generally port-holes of small diameter looking usually east, but occasionally west and still more rarely north. About 45 km. east of Mangalore a sea port on the west coast in the Dist. South Kanara at Kajekaru (Guru-Raja Bhatt; 1969 : Pls. CXXX.-CXXXIII) are found dolmenoid cists with port-hole. Recently, an extensive megalithic site discovered in Beluvankudige near Shringeri, perhaps has similar tomb-types.

In the Pulney group dolmens with or without port-hole are found in large numbers in Marayur (Vasudeva Poduval; 1933-34: p. 3-5), Bison valley (1939-40: pp.8-15), Periakanal-Devikolam road (1939-40:p. 12), Anjanad valley (1946-47; p.1-3:1947-48: p.3) and Kodaikanal (Anglade, Rev. 1928; pp.1-28).

These dolmens are usually found in groups in rectangular square, trapezium semi-circular, polygon tending to be circle enclosures, each containing 3,4,6,8,11 and 14 chambers. The chambers are formed with six thick rough slabs four on the sides, one on the top and one as flooring slab. Within the enclosures they are in two rows facing each other or at right angles or erected radially. They are therefore oriented to

any direction and erected sometimes directly on the bare rock. The plan of the chambers is neither clockwise nor contra-clockwise.

The dolmens in Vilapatti valley are surrounded by several heaps of stones forming probably the cairn packing. At Muthukad and particularly in Ranni Reserve (Krishan Iyer; 1929-30:pp.115-126), the dolmens are oriented either east-west or north south and accordingly have port-hole looking east or south. The port-hole is covered externally with a slab. The coambers very considerably in sizes.

Besides, small rectangular chambers are also found with in the enclosures.

Further east and north of these sites chambers of this type are found, but half or completely sunk in the ground in the areas of Pudukkottai (Venkataram, Ayyar K. R. 1940 : pp. 520-526, Srinivasan, K.R. 1938-39: pp. 3-5 ; 1939-40 : pp. 2-12; 1940-41 : p. 14 ; 1941-42: pp. 6-7; 1942-43 : pp. 6-7; 1943-44 : pp. 7-9 ; 1944-45 : pp. 5-7 ; 1945-46 : p. 5 ; 1944:p.97), Chingleput, with some variations in the former, as for instance at Kunnattur and Soutoukeny near Pondicherry. The chambers in Pudukkottai the front looking like a area are transepted cists having port-hole approached by a short passage closed at small chamber and are enclosed usually in stone circles. The port-holes wherever presents, in many of them, look east or south while instance of the port-hole looking west and north are also there. In a very few cases the port-hole is squarish.

Cists with port-hole in the eastern orthostat have been found in Odugattur, Kollur (Garstin; 1876 : pp. 159-60).

Tiruvalangadu (Dist. Chittoor) and Karikantangal (North Arcot) have port-holed dolmenoid cists (Srinivasan; K.R.; 1953; p: 106).

To the east and north-east of Brahmagiri group are the sites at Kosgi, Yeleswaram and a few sites in the Dist. Krishna (Boswell: J. A.;1872: pp. 150-51) all along the Krishna valley and at Mungapet, (King, William; 1877: pp. 179-85) (Mulhern, J; 1868: pp.116-118) and Pochampadu along the Godavari. Excepting Kosgi-Alampur stretch, megaliths of the Brahmagiri type is scarcely found, if not absent in the other sites. Port-hold chambers of Hire-Benkal type comparatively in very small number and far flung from one another, suggesting that the lower Krishna and the Godavari basins form only the peripheral zone of the Hire-Benkal type. It should be noted that these basins are rich in megaliths of the oblong cist type which will be referred to below.

It is noted above that one of the port-holed dolmens in the eastern group at Hire-Benkal, has a big arched slab higher than the dolmen, covering the port-hole. Somewhat similar arch stone (Branfill; 1881: pp. 1-17) is found in front of a port-holed dolmenoid circle on the inner edge of the double circle, in the site at Ittigebailu in Savanadurga area. A few more similar burials with arch form vertical monoliths of similar size exist here.

Excepting the grouping of the chambers within enclosures, all the other features are already noticed in the dolmens with or without port-hole of Aihole-Rajankolur are and excepting the plan and dressing, in the dolmens of the enclosures round two or three dolmens are found in Hire-Benkal as mentioned above.

In some of the megaliths of the above types are found pyriform urns and russet coated white painted pottery vessels, which have not been so far found in Hire-Benkal site or the other sites of the Brahmagiri group. Many of the pottery from the megaliths of Coorg area (Walhouse, M. J. : 1875 : pp : 12-13) Coastal and Ghat region (Sundara ; 1974a) are curiously miniature vessels and included double spouted vessels also.

4. Oblong Cists or Dolmenoid Cists

Oblong cist (circle) are predominant in the Shorapur Doab as at Jewargi (Bk), Andola and Chikanhalli and Hire-Benkal in North Karnataka and in the lower basins of the Krishna and the Godavari, to mention a few, at Maula Ali (ARADH ; 1915-16 : pp. 6-10), Yeleswaram, Nagarjunkonda, Raigir (Hunt, E.H. ; 1924 : pp. 144-5), Hashampet (ARADH ; 1934-35 : p. 10), Polechetti Cherugudda (ARADH ; 1940-41 : pp. 13-14). Thus it appears that this is the predominant type in Telangana region of Andhra Pradesh. It appears therefore, that Gulbarga area (and perhaps the Raichur Doab) seems to be the western part of the cultural focus of this type, since this type does not occur further west of Gulbarga.

In many of the sites of the Pulney group are oblong cists sometimes divided into two or three sub-chambers as at Tengakkal Estate (Vasudeva Poduval ; 1936-37), Pulimattu (Joseph T.K. ; 1928-30 : pp. 52-56), Bhavani (Fraser, W ; 1861 : pp. 112-119) in Kerala Anamalai Hills Turner, H.G. ; 1879 : p. 207) in Dadampatti (Alexander Rea ; 1888 : pp. 63-66) in the Dist. Madurai, Nattukal Palaiyam (Harding, H.O.D. ; 1889-90 : pp. 13-20), Shevroy hills etc. The port-hole, if present in the chamber usually looks east or south but occasionally the other directions as well, as at Nattukal Palaiyam.

It may be noted that cairn stone circles and urn burials also occur in some of these sites.

In pottery and the mode of burials, megaliths of this type from North Karnataka and from the lower basin of the two rivers do not differ. But in certain architectural features there are some variations. In Maula Ali and Raigir, the northern orthostat of the cist is taller than the rest and have either semi-circular top edge or headlike projection and rests against the capstone (Hunt ; 1916 : Cist, 1 sections AB and CD. Maula Ali Cist 1 section north-east and east-west). This feature is not merely ornamental but functional as it avoids the inward collapse of the orthostat. Of course the feature occurs in one of the cists at Jewargi (Bk) but without dressing of the top edge of the orthostat in question. But the most significant feature that distinguished the megaliths of this type in Gulbarga area, is the provision of a passage in the cairn packing within the circle.

This feature must have obviously been taken over from the passage chamber builders represented by the passage chambers found in the area. This would imply contact between the two different groups of megalith-builders.

5. Pit-burials

This type is found in the habitation site in Maski and in the Gajendragad group. Usually, it is without lithic appendage. It is classified as one of the mega-

lithic types of burials in view of the other complex traits of the megalithic tomb culture it has, such, as secondary burials and the typical megalithic black-and-red ware pottery.

In South India, in many of the Dists. of Tamil Nadu especially in Madurai and Tirunelvelli, urn-burials in most of the sites, are without lithic appendage, the well-known example being Adichanallur (Alexander Rea ; 1903-04 : pp. 18-22 and 1915; 1949).

In Pudukkottai (Guru Raja Rao, B.K. ; 1972 : pp. 87-95) and in the western part of the Dist. Coimbatore (Walhouse ; 1875) pit-burials containing urns occur. In the latter, the pits are cut in soft rocky bed.

In Coimbatore area (Guru Raja Rao : pp. 95-103) the funerary urns of coarse red ware, wide mouthed, with tapering base, occasionally having rude chain pattern round the neck are found in the pit-burials covered with a stone slab at the top.

But there is one difference between the pit-burials of North Karnataka and of South India. The distinctive type of hand made oval or pyriform shaped urns of coarse gritty core, with pedunculated or heeled solid bottom, flat at the lower end or the huge coarse urns, usually found in the pit-burials of the latter are not found in those of the former.

6. *Pit-circle*

This type is found in almost every part of Peninsular India. The sites are very numerous. Just like round barrows, a cairn stone circle would have either a cist or a pit as for instance at Jewargi (Bk), Nagarjunakonda (Megalith VII) and at Sanur (Megalith 2 and Megalith 5). On the surface of a cairn stone circle, if it has a cist or pit, is not generally evident. Further cairn stone circles with pit or cist exist together in many of the sites. Here pit-circles are referred to below, as cist-circles are already considered above.

Pit circles as represented by Megalith 2 of Maski are the most common and predominant type found in very large numbers in Raichur and Shorapur Doabs. Elsewhere, north of the Bhima, stone circles obviously of the pit-circle type, are reported to have been found in Wadgaon and between Sendri-Loni in Dist. Osmanabad. Further eastwards pit-circles occur along the Krishna as at Yeleswaram (Waheed Khan ; 1963 : p. 6), Nagarjunakonda and north-eastwards in some localities in the Dist. Chanda in the valley of the river Wardha and in about twenty localities in between the Wardha and Wainagana rivers (Dikshit ; 1968 ; p. 31, Fig. 3) of which Junapani and Takalghat are well known. West of this Vidarbha region in the Dist. Dhulia (IAR ; 1960-61 : p. 26) in the Tapi valley is another site at Ranjala worthy of note. To put it in a concise way, the Raichur Doab, the Shorapur Doab, the Bhima valley and some parts of the lower Tapi valley have a large number of megaliths of almost invariably the pit-circles type, for the obvious reason that the upper part of this track of land is of the Deccan trap from which it is comparatively very difficult to obtain slabs in abundance suitable for cists etc. The region south of North Karnataka has pit circles as for instance at Jadigenahalli, and other sites in Southern Karnataka (Seshadri 1960 ; p. 4) Perundurai (Walhouse ; 1875) Kodaikanal

many sites in Dists. Madurai (Aiyappan; 1940-41: pp. 373-79), Chingleput, and at Perumal Palaiyam (Dist. Tiruchirapalli), Paiyampalli (IAR 1967 : 68 pp. 29-30) in Dist. North Arcot and in many sites like Yeleswaram, Pochampad etc. in Andhra Pradesh. In Perumal Palaiyam, the megaliths are single, double, treble and four-circles. From one of the Pit-circles, in Nallampatti near Coimbatore, was obtained, a necklace of sea shells. At this juncture, it is recalled that in North Karnataka one of the round barrows at Tallur, yielded 21 conch shells probably of a necklace.

From the location of these pit-circles sites it is evident that the Bhima Krishna Tungabhadra valleys form a part of the most extensive megalithic type and stands in between south India and the western part of the upper Deccan typified by Ranjala that exhibit an essential homogeneity to those of North Karnataka. Those of Vidarbha region so far as the burial furniture, mode of the burials and the structural details of the megaliths as known at Junapani and Kapa (Deo, S. B. ; 1970) are concerned, seem to be of different complex. They are distinguished by a kind of black-and-red ware pottery (Dikshit M.G.; 1968: p. 57, Figs. 19-21 and Deo, S.B. ; Figs. 9-12) without the usual megalithic types and by a rich variety of copper objects and of etched cornilean beads, besides iron objects. Further, the pottery includes a kind of urns of micaceous red ware (Dikshit, M.G : p-47, p.15 and Deo, S.B. ; Fig. 10) analogous to the chalcolithic urns, not found in the pit-circles of North Karnataka, Andhra Pradesh Southern Karnataka and Tamil Nadu. As at Gajjalakonda (Longhurat; 1914-15) and in many sites in Dists. Tirunelvelli and Madurai, in Kunnattur and Jadigenahalli, stone circles of the type may also contain either terracotta legged sarchophagi or pyriform urns. In the disturbed or excavated megaliths of this type in North Karnataka neither pyriform urns nor terracotta sarchophagi is found. However, occurrence of a small circular sarchophagi with four legs (perhaps a proto-type of the big, elongated sarchophagi with two rows of usually six legs each) from Hampi (Foot; 1916: pp. 165-6) and from Banavalli (Seshadri; 1960 : p. 2) Dist. Kolar, may be mentioned. But the other pottery in type and fabrics from these regions are similar to those of North Karnataka. The burial of a pit-circle may be either secondary, single or multiple and fractional or single extended, either east-west or north-south oriented. In these respects, the excavated megaliths I to XV excepting VII, in Nagarjunakonda, are the typical instances.

7. *Round or Oblong Barrows*

This type is commonly found in the area between the Malaprabha and the upper reaches of the Tungabhadra valley and in a few sites near the Bhima, in North Karnataka.

From the surface indications of the round barrows, it is not apparent, whether it contains an unlined pit or slab or boulder chamber. If it contains a chamber, then it has to be classified under the types 2 or 3 or 4 discussed above as cists. Sometimes, the circle bound cairn packing covering completely a passage chamber overflows so much, that even the bounding circle is completely concealed. The barrows at Jewargi (Bk) contained cists. The exact nature of megaliths of this type can be known only from the excavations. However disturbed round barrows at Nagvand, Tallur and Guledagudda sufficiently and undoubtedly indicated that they were unchambered.

Outside North Karnataka megaliths of this type are reported from a few sites : Mattavaru (Seshadri; 1960: p. 3) in the Dist. Chikmagalur (Karnataka), Sankhavaram in the Dist. Cuddapah, Andhra Pradesh (Raghavan; 1935 : pp. 306-07) etc. The barrow in the first site is essentially of earth. Those in the Dist. Chingleput and other places contain urn burials. In the region of Bangalore (Karnataka) similar round barrows consisting of specially white quartz rubbles, comparable to those of Sindhogi, are found. But whether in all these sites they are without cists, is not evident on the surface.

Further, there are not many sites with this type known. At present it is not possible to visualise how this type of North Karnataka stands geographically and characteristically related to those outside. Anyway, that this type represents a separate tradition is evident from the sites at Sindhogi, Nagavand and Guledgudda in the first site of which the passage chamber tombs and the round barrows exist side by side.

It may also be noted that this type is different from the pit-circle in only one respect i.e., the latter has a circle to hold the cairn within. It may not therefore be of much use to differentiate between the two distinct types. But it should also be noted that these two types do occur together in one site as e.g. at Jewargi (Bk) suggesting probably that there is a deliberate attempt on the part of the builders to add circle or not. In Chinnamettukkalai (Dist. Tanjavur) near Eattuputtur (Guru Raja Rao ; 1972 : p. 91) are about fifty cairn stone circles in a field and on the southern side in the same site are urn-burials without stone appendage. Similarly, of the four sites at Perumal-Palaiyam, Padalur, Naranamangalam and Senganom, all in the Dist. Tiruchirapalli single or double cairn stone circles and dolmenoid cists are found in the first three sites, while in the last, only cairn stone circles.

8. Stone Alignments and Menhirs

Stone alignments are found only in the Shorapur and Raichur Doabs in the North Karnataka and in the lower valley of the Krishna as far east as Reveralas in Dist. Krishna.

South of Raichur Doab menhirs are found in a small number at Sanganakallu and Brahmagiri area. South-west of Brahmagiri about 90 km. away, is the site with disturbed menhirs in a locality called Gudde Maradi near Shimoga. Further south-west of this site, about another 90 km. away near the Western Ghat is a group of menhirs. The site is about 8 km. east of the Western Ghats, near a locality called Nilaskal which in turn is about 8 km. West of Hosa Nagara in the Dist. Shimoga. Here, the menhirs were actually erected in the neolithic site. Some greyish ware pottery of Maski fabric from a recently cut trench on the road side that runs through the site, were collected. This is the first neolithic site to be noticed in the Sharavati basin near the Western Ghat (Sundara ; 1969).

There are about 20 menhirs (Pl. XXVIII ; 2,3) many others being missing, erected haphazardly unlike those of Vibhutihalli or North Karnataka. In Gudde Mardi, they are quite a few, one of them being 2.40 m high and 1.80 m wide and about 30 cm thick. Now only five are extant.

Again, south of Brahmagiri near Perisandra (Cole, R.A. ; 1873 : p. 86) there is one menhir of granite slab about 3.40 m h x 90 cm b comparable in size and type to one of the biggest menhirs in Nilaskal. At Managandanahalli there are some menhirs of this type, a few of them being associated with port-holed cists. (Pl. XXXI ; 1.3).

In Kerala (Krishnaswamy ; 1949 : 38) in the region of Bison valley (Vasudeva Paduval ; 1939-40 : pp. 14-17) of Pulney hills (Anglade), are some sites with menhirs. But details regarding the number of menhirs in each site and their mode of arrangement are not available. However, as known now they are few and far between. Like those of Nilaskal the menhirs are generally huge thick and rough. The one at Pupparapakuty, is about 5.50 m h, 4.50 m b and 30 cm t.

These menhirs are very huge and thick granite-slabs. The granite rocks though less exposed owing to thick soil cover and vegetation are laminated and rarely bouldery, and yield good slabs.

In North Karnataka and also in Andhra Pradesh the menhirs of the stone alignments are generally bouldery mosses in diagonal or square patterns. However, the menhirs in Reverala (Vanstavern, T ; 1875 : p. 305, Figs. 3 and 4) Dist. Krishna and of the stone alignment at Muradoddi (JHGS ; 1941 : pp. 85-89 Pl. IX No. 1) are undressed rough, tall slabs.

In North Karnataka, excavations of the menhirs showed that they were non-sepulchral. On the other hand, some menhirs in Kerala are found to be sepulchral (Vasudeva Poduval, 1939-40 : p. 16).

It is noteworthy, the distribution pattern of the menhirs associated with pit-burials in Kerala mainly coincides with those of the types ; viz., port-holed cist-circles or dolmens of, to some extent, the Brahmagiri and Hire-Benkal types suggesting the overlap of these types.

Thus the menhirs and the stone alignments do not belong to one complex and indicate separate traditions. While the former belong to the South Indian Megalithic complex the chronology of the latter and the cultural complex to which they belong are yet to be known (Sundara ; 1971f).

9 and 10. Rock Shelters and Irregular Polygonal Chambers

These types have not yet been reported outside North Karnataka.

Megaliths of North Karnataka and North India

Menhirs and cist-burials in Kashmir valley (Rybot, N.V.L. ; 1931 and De Terra H ; 1936), cairn stone circles, cists in Rajasthan, Agra area (Carlleyle, A.C.L. ; 1874 : p. 214 ; 1878 : pp. 33-39, 88-89 and 104-108) and in Allahabad-Varanasi area (IAR ; 1961-62 : p. 53 ; 1962-63 : I. 63) have been reported by and by. Excavations of the site in Burzahom, revealing megalithic phase (IAR ; 1960-61 : pp. 11-12 ; 1961-62 : pp. 17-21) and of some megaliths at Kotia, Hathiapahar and Badahawan (IAR ; 1963-64 : pp. 1-61, 63-65, 85) and at Banimila-Behera, Dist. Mirzapur, (IAR ; 1962-63: 1-16) and at Khuntitoli, Dist. Ranchi (IAR ; 1965-66 : 1, 19-21), have disclosed that the burials at Burzahom (Sharma, A.K. ; 1967 : pp. 239-242) and the other places in the structural details, modes of burials and in the pottery are of varied complex traits and differ altogether from those of Peninsular India.

Megaliths of North Karnataka and Parallel Megalithic Types from outside India

The regions considered for general comparisons are Western Asia and in particular Western Europe, where megalithic tombs of the Neolithic and Bronze Age culture are found. The comparisons are for obvious reasons limited in scope and only to the architectural forms and not to chronology and burial furniture.

In these countries and others including Japan (Gowland) and South-East Asia (Reisenfeld-Alphonoso ; 1952) at some stage, use of stone in different ways for burials, came into vogue probably due to the movements and settlements of one particular community or race or the diffusion of the idea. Owing to cultural and commercial contacts among these countries the idea of using huge rough stones for burials originated in one or more centres (Smith Elliot, 1913 : pp. 193-195. Peake Harold, 1916 : pp. 116-121) diffused from one or many regions to other regions ; was received directly or indirectly and adapted according to local environment and cultural traditions (Wheeler ; 1948: pp. 5-13). As a result of these circumstances there occur considerable differences and also some common features between the megaliths of different regions or countries.

Western India is exposed to Western Asia and Mediterranean worlds and Egypt and evidences are gradually accumulating that there were commercial and Cultural contacts in considerable volume with Western Asia (Rao, S.R. ; 1961 : p. 46 ; 1965 : pp. 30-37; Sastri, K.N. ; 1961 : p. 51, Trofimova T.A.; 1961 : p. 62 ; Sankalia ; 1963 : pp. 312-332; Saxena, K.K. ; 1965 : pp. 200-05). from the Harappan times, if not earlier, and also possibly with Egypt (Lal, B.B. ; 1963 : pp. 570-81 ; Ghurye, G.S. ; 1963 : pp. 80-94).

Western Europe (Daniel, Glyn ; 1963) Palestine Cyprus (Ramachandra, K.S., 1968) and Northern parts of Iran (Banerjee ; 1965 : p. 47) and Persian Gulf (Bibby, T.G.; 1961 : pp. 28-30) have numerous megalithic tombs. Especially the megaliths of the Western Europe, as per the C-14 determinations of several sites, are dated from 3500 B.C. to 1700 B.C. (Daniel; 1963 : pp. 143-46) and mostly of the Neolithic and Bronze Age Cultures. And in Kuban area, North Iran, the port-holed tombs were of the Bronze Age probably before circa 1500 B.C. (Banerjee, N.R. ; 1965 : p. 47) and were continued to be used in the Iron Age also. In Umman-Nar Island, there are port-holed circular chamber tombs of cut stone (Bibby ; 1961 : p. 29). The cairn burials of Baluchistan area, it is argued, are mostly of the Iron Age and probably beginning from about 800 B.C. (Banerjee ; 1965 : p. 48) or even as late as 300 B.C. (Subrahmanyam, B.R. ; 1966 : pp. 69-78). Of late in Swat area cist burials containing iron objects to C-14 determinations, are ranged between 600 and 400 B.C. (Giorgio Stacul, 1967). Previously, near Karachi and other places (Frere, H.B.E. ; 1853-57 : pp. 349-369. Sankalia ; 1962 : p. 126, footnote 94) in West Pakistan, dolmens with port-hole were noticed. Unfortunately, no full details about these megaliths are available. Their chronology also is not clearly ascertained.

The beginning of the Iron Age megalithic culture of South India and the deccan is much debated and placed from about 200 B.C. to about 700 B.C. (Sheshadri ; 1956: pp. 70-72. Banerjee ; 1965 : pp. 40-42 and 55-63).

What is noteworthy from the above passing references to the megaliths of the

different regions and to their much and still disputed date range, is the existences of megaliths of different types and periods, here and there, from Western Europe to South India. Whether and how these megaliths are possibly related to one another, are problems to be solved. The linking regions in between these areas are not explored for megalithic remains, if there be any Excepting West Europe, the megaliths of the other regions are not as much well known for a thorough comparison. Literature pertaining to the megaliths of Western Asia are scattered and not easily accessible.

The West European megaliths are typical, varied and much earlier than the others and thoroughly studied. There appears to be some affinity between the megaliths of South India and of West Europe as suggested by the port-hole found in the megaliths of both the regions already noted by Wheeler (1948 ; p. 304).

1. Passage Chambers

The comparisons as pointed out above are for obvious reasons limited in scope and duly to the architectural forms and not to chronology and burial furniture.

In Western Europe in most of the sites megaliths are not as numerous as in South India including Karnataka. The round barrow is very common. But in some of the countries, (Daniel, Glyn; 1963, p. 33) such as France, Sardinia, are long barrows ; in British Isles, ovate barrows and in Scandinavia, rectangular barrows. Some of the megaliths are exceptionally very imposing, but disproportionate. The passage of the chamber tomb in New Grange (Ibid) is unduly about 19 m (65') long and the circumference of the cairn packing enclosing the chamber is 75 m. (250') l. In West Kennet (Ibid) the long barrow is 96 to 102 m and that in the East Kennet, 115 m.l.

The most typical megalith is passage chamber, the chamber being circularly polygonal approached by a passage. Megaliths of this type are found in southern Spain-Portugal, north-western France, West Wales, Ireland, etc. and besides the gallery graves there are passage chambers also in north-eastern Spain and southern France. The typical examples are from Ordem and Pavia in Portugal (Daniel ; 1963 : p. 41), from Kerlescant (1963a : p. 143 ; Fig. 10a.), from Bazognes-en-Pareds, Vendee etc., France (1963 : p. 101, Fig. 17) and from Inverness-Shire, Scotland (Henshall, A.S. ; 1963 : p. 359, Fig. 86, p. 363, Fig. 88 ; p. 365, Fig. p. 369, Fig. 89, etc.), are analogous to the passage circular chamber of Terdal Halingali.

But unlike that of Tredal-Halingali group, in these the passage is generally long and wide. The passage of the chamber tomb in Gunha Baix is 7 m l while that of the other in Prado Lacara, about 15 m l.

In Inverness-Shire the passage chamber is enclosed in cairn circle which in turn is bound by another circle of free standing stones spaced regularly. There is no cairn between the two circles in Terdal this type of passage chamber has short passage enclosed in two circles, or a circle and a rectangle or a rectangle. Besides, it has pillars within the chamber to support the capstone.

In some passage chambers, there is no sharp bent at the junction of the chamber and the passage and looks on plan like V. A passage chamber of this type is called V-shaped passage chamber, analogous to some of the passage chambers which are invariably surrounded by circle in Kaladgi (Pl. XII ; 4) and Hunur (Pl. III ; 4).

Passage rectangular chamber tombs are found in Cabo Mondego, Portugal,

de Cabana Arqueta, de lo Font del Roure, Espolla Province Gerona at Ronas hill in Shetland, England.

In British Isles, among the Severn Cotswold long barrows (Davison Dorothy, 1951 : pp. 204-205), with forecourt, containing passage tombs of slab or dry walling as at Nymps-field and Uley respectively, the plan of about eight tombs is like that of a long cruciform church with two or more trancepts. The one in New Grange and another from Stoney Littleton Somerset are the typical examples. The former is cyclopean in construction enclosed in a round barrow which is surrounded by a circle of free standing stones. The front end of the passage opens into a roughly rectangular court, the passage chamber is about 19.50 m l. Some of these passage chambers are transepted. Sometimes, a passage chamber may have side chambers and the chambers may be divided into sub-chambers with transverse slabs. These transverse slabs are provided with port-holes. In Terdal-Halingali group the plan of the passage chamber is like Greek or Latin Cross. (Sundara, A; 1966-67 : pp. 4-6). The chamber has neither transverse slabs dividing it into sub-chambers nor port-hole anywhere. There are regularly spaced pillars within to support multiple capstones. The chamber is invariably south-oriented concealed in a cairn packing held by coursed circle and rectangle or only rectangle.

In Western Europe, usually the passage chamber is concealed in a round barrow. Sometimes the barrow on the passage side is made to recede so as to form an open concave court as the centre of which is the entrance to the passage. The curling sides of the court look like the horns of an animal like ox. Such barrows are, therefore, described as "Horned Cairns". Usually the passage chambers are oriented to different directions. The Indian passage chamber tombs generally do not have such concave facade. However the recent excavations of the long barrow at Hunur, has disclosed a passage chamber as having a roughly rectangular facade at the entrance of the passage and look like the concave court of the horned cairn. But the court was actually concealed in the barrow thus differing from that of the horned cairn which is open. Secondly, the cairn of the passage chamber is frequently bound by a rectangle or circle or by both but never by a circle of free standing menhirs. In general the chamber is distinctly either rectangular or trapezium on plan and the passage terminates almost near the edge of the sloping cairn. There is no port-hole in the door slab of the passage excepting that of the Kaladgi type and of the port-holed dolmenoid cist of Aihole-Hagaratgi area. The chambers of Konnur and nearby localities and of Terdal-Halingali are invariably south oriented unlike that of the West Europe. However, the passage of the Kaladgi, Rajawala chamber tombs are oriented to different directions.

The West European passage chambers are usually nearer a side of the cairn packing whereas the Indian counter part is usually at the centre of the cairn packing.

In Western Europe a long barrow may have one or two passage chambers near the narrow ends or somewhere in the middle. Thus the size of the barrow is inordinately disproportionate or abnormally long. In India, a long barrow may have several chambers proportionately and evenly distributed over the entire area of the barrow. In Western Europe, if there are more than one chamber, they may be oriented

in opposite directions. But in India irrespective of the number, they invariably are oriented southwards.

The construction, like the West European passage chambers, is usually orthostatic and occasionally cyclopean.

The passage chambers of Western Europe, are generally communal vaults or collective tombs containing unburnt skeletons. The burials is in humation, generally in contracted position. Some tombs contain a few skeletons, while others, in large number. The tombs of St. Eugene near Carcassonner, in southern France contained 300 skeletons ; tombs in Denmark and Sweden about 100 skeletons and in Pant Y Saer in Anglesey, England, about 54. The authors who primarily were responsible for the megaliths, were chiefly of a Mediterranean long-headed type as well as round headed.

From some tombs in France, Spain and Ireland, there were evidences of cremation.

The Indian passage chambers contain mainly post-excarnate, secondary and fractional and multiple burials. The tombs are thus family vaults. The two known racial elements from the cist-circles of Brahmagiri and of Yeleswaram are : an autochthonous Australoid and another type of probably Scytho-Iranian stock.

2. *Port-holed Chambers*

It is already discussed above that there are three types of port-holed chamber tombs, port-holed dolmenoid cist (with a short passage), port-holed dolmens and oblong dolmenoid cists or cists with port-hole. It is the presence of port-hole in the orthostat that is particularly of importance.

In Western Europe, port-hole/s is/are found in a small number of passage chambers in Britain, in the gallery graves of southern Sweden, in southern Iberia and France (Daniel, G; 1963 : pp. 45-46). The passage chamber tomb No. 20 at Los Millares (pp. 62-63) in S. E. Spain has side chambers, septal slabs and a number of port-holes. Rock-cut tomb of the Lisbon area (p. 65) are provided with port-holes. The port-holes of the tombs at Avening and Rodmarton, in Gloucester are too well known (Daniel ; Pl. 5). But for the port-hole, the two types of megaliths : dolmens and dolmenoid cists of India and the passage chambers of Western Europe are different from each other.

Similarly, the graves with port-hole of Sialk VIB (Banerjee ; 1965 : p. 128) in Iran, is generally an unlined pit containing the skeletal remains and burial furniture. The 'tumulus' over the pit is enclosed with slabs of usually stones or occasionally of the terracotta combined with sun-dried bricks. One of the slabs, has a squarish or circular port-hole.

The pits are either east-west or north-south oriented. Usually the pit contains single skeleton in crouched position, but in a few cases, multiple skeletal remains.

In Koban area, North Iran, and further South in Talish basin and other places (Schaffer; 1948 : pp. 404, 406-414, 427-439) are port-holed dolmens enclosed in circles

of the Bronze Age dated to 1500 B.C. before. The dolmens in Talu, Chirchir pori etc. were found to have been reused in the Iron Age.

In Umman-Nar, are circular chamber tombs with port-holes of cut stones (Bibby; 1961 : p. 29). They are communal tombs containing upto about twenty skeletons accompanied with painted pottery beads and copper weapons. Thus from a comparative point of view it is only the port-hole and not even the architectural forms, let alone the burial furniture, that is common between the tombs of Western Asia and of North Karnataka.

3. Stone Alignments

In South India and the Deccan, there are either single standing stones, especially in Kerala region or stone alignments some in a mathematical pattern, squares or diagonals. Again, they are found to be sepulchral in Kerala region and non-sepulchral in North Karnataka.

In Western Europe, there are menhirs; stone avenues, i.e. single row of menhirs and circles of spaced stones. Menhirs are comon in Brittanny (France) and circle of stones, at Nine Maidens in Cornwall or Long Mog Cumberland (Daniel; 1963 : p.14). A long avenue is in a Avebury and another in Kilreeling Co kerry in Ireland (Raftery Joseph; 1951 : p. 54. Fig. 54). In Dartmoor, stone avenues sometimes lead to megalithic cists (Daniel ; 1963 : p.15). Of all, the most famous and the largest is the stone alignment at Carnac in Brittany. It comprises about 3,000 menhirs spread to a distance of 3.50 to 4 miles (Daniel; 1963a; Pl.14). Some stone alignments in this place have at one end semi-circular or semi-rectangular enclosures of upright stones. This site is comparable to that in Hanamasagar that has about 3,000 menhirs in alignment.

In South India and Deccan there are no circles of menhirs ; stone alignments are common in North Karnataka and Andhra Pradesh.

General Observations

The Indian types disclose more advanced knowledge of mathematical calculations in the construction, especially in spacing the tombs in long barrows or in rectangle or circle, in having perfect circles and in the size of the barrows.

It is only the port-hole element of the port-holed chambers, that is usually referred to as having similarity with that of the passage chamber of Western Europe. It is uncertain if the port-hole is directly linked with those of Western Europe or of Western Asia. But in the case of the passage chamber the similarity with that of the Western Europe is more direct and emphatically substantial. It is noteworthy at this juncture that comparable passage chambers have not been so far reported, in Western Asia.

From, the above study it is apparent that of all the types of megaliths in North Karnataka nay, in South India the passage chamber tomb, in fact, bears a very close resemblance to those of the Western Europe where this type is very distinctive and the similarity is so close that assumption of some sort of link in between them, or postulation of a common source inspiring the development of these types in course of

time in different parts of the world such as Great Britain and South India in different periods, becomes rather irresistible. However possibility of sheer accidence in such resemblances, ruling out any even vague connections of any sort, can not be ignored.

The other types of megaliths such as unchambered round barrows, pit-circles, pit-burials, cists without port-hole are too simple and comparisons with respective types of the other regions would not in any way be significant.

9

THE MEGALITHIC CULTURE IN NORTH KARNATAKA : A CRITICAL REVIEW

In the last seven chapters an analytical study of all the known tomb types in North Karnataka especially, their morphological characteristics, the distribution patterns, the modes of burials and the burial furniture, is made. Further the extent of their affinity and relationship with those of Peninsular India on the one hand and of Western Europe and Western Asia on the other, are reviewed.

Now, it is proposed to discuss in the following pages, the other aspects of the megalithic culture as follows :

1. Locations of the sites.
2. Tomb types and other megalithic monuments.
3. Modes of the burials.
4. Pottery.
5. Metal objects.
6. Rock paintings.
7. Skeletal remains and megalith builders.
8. Origin and diffusion of megalithism.

Then, a chronological order of the tomb-types and a broad assessment of the megalithic culture in the region under study, are attempted separately in the next two chapters.

1. Locations of the Sites

It is observed that there are generally heavy concentrations of megaliths in the hilly areas overlooking rivers : the Tungabhadra, the Krishna, the Bhima and their tributaries. This is especially so with regard to the passage chambers in the zone of the Kaladgi series. Preference of the river sides is not mainly due to the abundance of the new materials. For, suitable rock-materials occur even beyond the river valleys where megalithic sites are rarely found. The other types of megaliths in the other zones are sometimes found away from the river banks. Thus, it seems chamber tomb-builders seem to be a separate community who primarily were associated with river valley environment. What significance it has on the economy of this community and their cultural background is required to be known from further examination.

In South India, it is observed that the megalith builders there were "an agricultural people, who depended upon bounded rain-water for irrigation. They also protected arable land from being encroached upon by megalithic tombs" (Banerjee ; 1959 : p. 7).

In North Karnataka no doubt, the megalith-builders preferred for their cemeteries, terraces of the hills or stony waste lands. But they erected tombs in the plain fields also near the hills valleys providing suitable rock-materials. In fact it is this feature of the valleys that accounts for the concentration of the megaliths there in this region. The sites in the fertile plain fields which are now under cultivation at Konnur Savalgi, Jewargi are typical instances, in this regard.

Further, the megalithic habitation sites at "Ankana Kollada Hola" in Vibhutihalli and in Rakhamgeri, are situated near the hill valleys from which the rain water flows into the fields cutting in fact a part of the site at the former and are thus within the catchment areas of the bounded water of the present irrigational tanks raised across the valleys. In the plain fields now under cultivation at the former, that would be inundated by the water from the tank, were the stone circles reported by Taylor. Within the catchment area of the latter besides the habitation site, is an Early Historical mound from which I could pick up a fine rouletted pottery dish. In fact the bund of the tank seems to conceal one of the menhirs of the almost destroyed stone alignment and from the core of the bund I could pick up potsherds of early historical period. It is thus obvious from these factors that the megalith-builders themselves were not the originators of the irrigational tanks. They did not seem to have bound the water of the valleys for irrigational purposes. Secondly, they did not appear to have made any deliberate attempt not to use cultivable land for megalithic elections.

A study of the megalithic sites in each of the geological zones indicates that generally the availability of suitable stone slabs of whatever rock-materials, was the main consideration for the location of the sites by the megalithic chamber builders. There is no clear indication that a particular type of rock was persistently preferred by them. However the passage chambers of the Konnur type are found, only in the quartizitic sandstone regions of the Kaladgi series, but for the stray occurrences of the type in the zone of the Bhima series. Whether the absence of the type in the other zones was due to the end or change of the particular architectural tradition by the time the builders diffused outside the zone is a matter of further investigations. The builders of the port-holed chamber of the four types and also of the cist-circles are found in the zones of the Bhima series and the Peninsular gneissic complex. At any rate the chamber builders of whatever the type, would not extend into the zone of the Deccan trap, for the obvious reason that suitable slabs in abundance could not be obtained without strenuous and time—consuming labour. The builders of the pit-burials, round barrows and cairn stone circles, had no such preference for a particular zone. These types are variously found in any of the zones including the Deccan trap.

Moreover, though the Shorapur and Raichur Doabs of the Peninsular gneissic complex are eminently suitable for the chamber types found in the neighbouring

areas, there the chamber tombs are few ; but the stone circles, pit burials, in huge number.

From the above analysis, it appears that it is not essentially the geology but the architectural or burial traditions of the people that influenced the forms of the type and the preference of the areas of different geological zones.

Secondly, the types are architecturally not involved in engineering complications and thus are simple inasmuch as the builders were not compelled to prefer a particular geological zone alone.

Another aspect of the locations of the megalithic sites, is mineral prospecting. It is observed above that the rocks nearby the sites are very rich in iron and gold. There were big megalithic settlement at Hire-Benkal site near Hospet region known for its rich iron ore deposits of high quality and at Maski, located in the band of Dharwar rocks with auriferrous quartz reef noted for its ancient gold-working pits. It is noted in the above chapters that a number of gold, iron-smelting sites are found from one end to the other, near most of the megalithic sites. In particular, the Kappatgudda range where there is a number of megalithic sites (list of the sites below Nos. 75, 84, 94, 95) is rich in gold as well as in iron has many old gold-working pits and sites strewn with iron slags.

Munn (1921 : pp. 1-11) plotted the megalithic sites then known in the region of the old Hyderabad State on the map and found the megalithic sites were closely associated with ancient mines (p. 2).

Some megaliths yielded gold objects when excavated as for instance megalith IX of Brahmagiri (Wheeler, 1948, p. 264, Pl. CXX, A). From one of the megaliths near Nilgund were recovered gold objects by the local people.[1]

Kolar, one of the richest areas in gold, in India, is also the richest in megalithic remains.

Thus, the location and concentration of the megalithic sites in the gold-bearing areas and the occurrence of the gold objects from some megaliths, have led scholars to think that the megalith builders were prospecting for gold. Similarly, owing to the occurrence of iron objects in many numbers from the megaliths, the absence of iron in the preceding neolithic cultural phase and the proximity of the large number of megaliths with the localities very rich in iron, seem to indicate that the megalith builders were iron-smelters.

But no direct evidences concerning smelting activities, have not been so far found in the excavations or otherwise. In spite of the location of the iron-smelting sites near the megalithic sites, it is still a problem to work out if the sites were due to authors of the nearby megaliths. However, the concentration of the megaliths near the localities rich in gold and iron, cannot be without significance. A scientific approach to this problem is necessary.

2. *Tomb Types and Other Megalithic Monuments*

The megaliths are usually in large numbers irregularly spaced in the terraces,

1. Information kindly given by Sri A.M. Annigeri. I am thankful to him.

on the slopes, at the foot of the hills and in the plain fields near the hills, and are now usually in a very bad state of preservation. In some places, the sites extend to an area of about 4 to 6 km.

In the extensive sites, megaliths are generally found in groups. If there are more than one type there is some degree of segregation, as observed in the sites at Hire Benkal, Jewargi (Bk), Aihole-Kyaddigel, Terdal-Halingali and in Hallur areas.

The megalithic types studied so far may broadly be grouped as thin :—

I. The Chamber Tombs :
  i) Passage chamber of the four types.
  ii) Port-holed chambers.
  iii) Small square chambers.
  iv) Oblong dolmenoid cists or cists with or without port-hole (including passage cist-circles).

II. The Unchambered Burials :
  v) Pit-burials (of the four types).
  vi) Cairn stone circles (of the pit-circles type including passage pit-circles).
  vii) Round barrows.
  viii) Menhirs.

III. Megalithic Monuments :
  ix) Stone alignments.
  x) Irregular polygonal chambers.
  xi) Rock-shelter chamber.

The first four types are distinctly chambered and the next four, unchambered. The functional aspect of the last three, are not known. The architectural features and the characteristics of the contents of the burials in particular as detailed above amply show a close relationship among these various types. Now it remains to be examined, the extent and the meaning of this relationship among them that may at least signify their development or sequence, if not the origin of the megalithic tradition as such. This aspect is of fundamental importance particularly for ascertaining the chronological ranges of the types. In this study, the small square chambers are not separately treated since they do not occur in considerable number and form a distinct type and are mostly found as an ancillary chambers with passage or port-holed chambers.

I. *The Chamber Tombs*

i) *Passage Chambers*

The passage chambers of the Konnur, Saundatti, Terdal-Halingali and Aihole groups extend from Harali-Ainapur (Dist. Kolhapur, Maharashtra) to Aihole on the east-west axis and from Terdal-Halingali to Saundatti, north-south. There are about 2,500 to 3,000 tombs. Some of the sites also have a few cairn stone circles and round barrows. At Terdal-Halingali, there are more than 1,000 chambers, but only a dozen cairn stone circles. Many round barrows, apparently unchambered, are found at the three sites in the Saundatti area.

The most predominant type is the south-oriented passage chamber. The passage is not always strictly south-oriented with reference to the present reading of a magnetic compass. It may be oriented to any degree between south-west and south-east. This is perhaps due to the varying positions of the sun at the time of the constructions of the passage chambers. In some sites from Hunur westwards, normally, the cairn packing is without a bounding circle or rectangle. However very rarely it may be surrounded by a rectangle or still more rarely by a rectangle and circle. And in the sites from Hunur eastwards, the cairn packing of the passage chamber may also be bound by a circle only. East of Aihole there are many megalithic sites with port-holed chambers predominantly the passage chambers being few and far between in them.

It is noteworthy from the above mentioned statistical table of the megalithic tomb types and their numbers in each of the sites given in the Chap. II, that the rectangles bounding the cairn packing of the chamber tombs are frequent in the sites from Hunur eastwards. The passage chamber tombs bound by a circle or a rectangle or by both, are strikingly more in Godchinmalki and the other sites nearby. Also an attempt to construct coursed retaining dry wall enclosing the cairn packing is evident. Large sized passage chambers are found in considerable number in the middle part of this long stretch of the megalithic cultural zone. Also, here long barrows are concentrated.

The passage chambers of the Kaladgi group has so far been found only at three sites. Bhairavanpada and Rajawala in the region of the Dharwar rocks and Kaladgi in the Kaladgi series region. The first two are located south of the region of the passage chambers of the Konnur and the other groups. At Kaladgi and Rajawala there are only 30 to 35 chambers each.

The irregularly hexagonal form of the chamber, the division of the chamber into two compartments, but with a common passage or entrance. The provision of a port-hole and the strikingly varying orientations of the passage chambers (looking west, north-west, north, north-east, east, south-east, south and south-west) are the distinctive features of the megalithic type of this group.

From the above analysis it is evident that these two distinct architectural traditions and there appears to be only a marginal contact between them. At Saundatti, in the passage-chamber of the aberrant type the enclosing circles of some of the tombs have a gap in alignment with the passage, and the space between the chamber and the circle is rather narrow. But these are regular features of the passage chambers at Kaladgi. At Kaladgi, two passage chambers are each first enclosed in a circle and then a rectangle, a feature very common with passage chambers of the Konnur. Such occurrences exhibiting the influence of the one type upon the other are few and are confined to the sites on the peripheral zone and are never found deep in the respective focal areas. In view of the small number and restricted distribution of the passage-chambers of the Kaladgi group and also of the marginal contacts, it appears that the tomb type introduced long after the inception of the other type of the Konnur and the other groups, which is spread over a vast area.

The other two types of megaliths burials found in the midst of the passage chambers ; small square chambers and cairn stone circles, are comparatively quite few.

Passage Chamber Types : A Comparison

From the above observations particularly on the passage chambers in the zones of the sedimentary rocks of the Kaladgi series and of the Dharwar rocks, it is substantially evident that the passage chambers of Konnur, Terdal, Aihole and to some extent Saundatti groups distinctly differ from those of Kaladgi, Bhairavanpada and Rajawala sites in their sizes, architectural features, orientations etc. For the sake of denoting the individual character of each type, the passage chambers of the former are designated as passage chambers of Konnur type and those of the latter, passage chambers of Kaladgi type, since these two types were for the first time noticed in Konnur and Kaladgi respectively. Now let us try to find out the extent of the differences between the two types.

Passage Chamber of the Konnur Type	*Passage Chamber of the Kaladgi Type*
1. Usually of uniform size ; occasionally of large size.	1. Almost invariably of uniform and medium size.
2. Squarish, rectangle or trapezoidal on plan. Predominantly of one type with two subtypes in Terdal-Halingali group.	2. Rectangular on plan, frequently divided breadthwise into two sub-compartments ; or hexagonal on plan. Consists of three subtypes.
3. The chamber is invariably made of orthostatic slabs.	3. The chamber is made of either orthostatic slabs or boulders on each side.
4. The passage is usually half the height of the chamber ; distinct and proportionately long.	4. The passage is usually very low almost to the ground level, indistinct and short.
5. The passage is mostly south-oriented or somewhere between southeast and southwest.	5. The passage is oriented to any direction, east or west, south or north, or in between any two cardinal points.
6. The passage terminates within the enclosing circle or rectangle and is closed across with a slab without port-hole.	6. The passage terminates in the opening made in the enclosing circle.
7. The cairn-packing enclosing the chamber is prominent almost upto the capstone and steadily tails off to the bounding circle or rectangle and sometimes overflows. It is hemispherical in profile.	7. The cairn packing is strikingly thin bound by a circle as the area in between the chamber and the circle alround is generally very narrow.
8. The thinning edge of the cairn packing is bound by a rectangle, a circle or both or rarely by double circles.	8. The thin cairn is surrounded by a circle, mostly almost as high as the chamber.
9. The enclosing rectangle is frequently coursed and thus become a dry masonry wall.	9. The enclosing circle is never coursed but may consist of double lines.
10. The space between the chamber and the bounding circle or rectangle is rather wide.	10. The space between the chamber and the bounding circle is very small, narrow.
11. Within the cairn packing or outside the enclosing circle there may occasionally be a separate small square chamber.	11. The chamber is never associated with a small chamber.

	Passage Chamber of the Konnur Type		*Passage Chamber of the Kaladgi Type*
12.	Two or three or as many as 7 or 10 passage chambers may be aligned in regular rows and concealed together under one elongated cairn packing forming a long barrow.	12.	No such grouping is made, resulting ultimately on a long barrow.
13.	Found in the regions of sedimentary rocks of Kaladgi series covering the south parts of Kolhapur, Belgaum and Bijapur Dists.	13.	Found in the region of Dharwar rocks covering the southern and western parts of Dharwar and Bellary Dists. respectively. The site in Kaladgi however, is in the region of the quartizitic sandstones etc., of Kaladgi series.

ii) *Port-Holed Chambers*

Like the passage chambers the chamber-tombs with or without port-hole e.g. at Aihole Hagaratgi, Rajankolur, etc., also are found to be of two types. The chamber of almost uniform size and elevation, invariably have a port-hole usually of 45-55 cm in diameter in one of their orthostats, generally facing south, rarely east. The port-hole is closed externally with a door-slab and approached by a passage. Usually the chamber is surrounded by cairn packing almost up to the capstone, bound by a circle. The circle frequently has a gap or opening into which the passage terminates. Thus the chamber becomes apparently a dolmenoid cist concealed in a hemispherical cairn packing. A typical example of this type is found at Aihole and is designated therefore as the "Aihole type."

The chamber of the other type vary strikingly in size and area. There may or may not be a port-hole in any of the orthostats and its diameter varies from 10 cm to 60 cm and has no approach passage. Usually, the chamber is not buried in cairn packing ; thus it stands freely and may be described as dolmen. There may be an outer enclosing wall of vertical slabs and an incipient cairn filling between the orthostats and the wall. Thus, megaliths of this type attain a rather hemi-ovalish profile and are without a bounding circle. This type is abundant at Rajankolur and is therefore named as "Rajankolur type."

In both the types, generally the side orthostats extend beyond the lateral edges of the front and rear orthostats. At the sites where both are found, each type is segregated from the other.

In the Western Ghats and Coastal Regions, e.g. at Arehalli Beluvanakudige Kajekaru (Sundara, 1974a), similar port-holed chambers are found. Probably this tradition spread further southwards along the Ghats and Coastal Regions, as suggested by the chamber-tomb sites at Coorg, Pulney, the Anjanad valley and the Bison valley.

	Port-holed Chamber of the Aihole Type		*Port-holed Chamber of the Rajankolur Type*
1.	The chamber is more or less of uniform size.	1.	The chamber varies strikingly in size.
2.	The plan is squarish, rectangular or rarely slightly oblong.	2.	The plan is usually oblong.
3.	In the centre of the orthostat facing south	3.	There may not or may be a port-hole in the

Port-holed Chamber of the Brahmagiri Type	*Port-holed Chamber of the Hire-Benkal Type*
or rarely east there is invariably a port-hole.	centre of an orthostat facing any direction east or west, north or south.
4. The diameter of the port-hole is usually from 45 to 55 cm.	4. The port-hole varies remarkably in diameter from 15 to 55 cm.
5. The port-hole is covered with a door-slab and approached by a short passage of low height. The passage is sometimes long, terminating at the enclosing circle.	5. The extant chambers have their port-holes uncovered. This feature is not clearly known.
6. The cairn packing surrounding the chamber is distinct and hemispherical in profile.	6. There may be thin and small cairn packing that is retained by a wall of vertical slabs. The megalith as such is semi-ovalish in profile.
7. The cairn packing is bound by a circle.	7. None of the extant chambers has an enclosing circle.
8. Found in Aihole-Hagaratgi area only.	8. Found in Aihole-Rajankolur area and in the Western Ghat and Coast, Coorg Pulney regions.

At Hire-Benkal the chamber with or without port-hole can similarly be classified into two types located in separate areas in the extensive site. They are chamber with an east-oriented port-hole approached by a short passage. and chambers without or with a port-hole facing any direction and covered with a stone slab, thus similar to the Aihole and Rajankolur types respectively.

But there are some differences between the chambers, with or without port-hole, of the Aihole-Rajankolur area and of the Hire-Benkal area . In the latter, the port-hole of the chambers with passage is east-oriented, while that of the former is usually south-oriented. The passage is invariably short and terminates within the circle which has no opening. This type is exactly similar to the port-hole chambers of Brahmagiri and of south Karnataka (excluding some parts of Western Ghats and the Coast) as at Savanadurga, Garudanahalli (ARMAD, 1930), etc. Hence this type is designated as the "Brahmagiri type". The other type of chamber with port-hole has a door slab usually big and of varying size to cover the port-hole, a feature not noted in the extant remains of the Aihole-Rajankolur areas. Port-holed chambers of this type are found in large numbers, about 100, in Hire-Benkal and this is the only site I have come across or known where this type is distinctly represented. It is called here the "Hire-Benkal type."

Now the points of differences in the architectural features and orientations, between the two types are enumerated below :

The Types : Their Developmental Implications

Further, comparatively there are some differences between Hire-Benkal, Brahmagiri types and Rajankolur, Aihole types. They appear to be of developmental significance.

Port-holed Chamber of the Brahmagiri Type	*Port-holed Chamber of the Hire-Benkal Type*
1. More or less generally uniform both in area and elevation.	1. Striking variation in the area and elevation.
2. Chamber generally squarish rectangular, but not oblong.	2. Chamber squarish as well distinctly oblong.
3. Chamber partly sunk in the ground.	3. Chamber raised almost completely from above the ground; sometimes partially sunk in the ground.
4. Capstone usually thicker than the orthostat and roughly squarish or rectangular.	4. Capstone generally as thick as the orthostats, mostly ovalish or circular and rarely, roughly rectangular.
5. Invariably a circular port-hole in the middle of the eastern orthostat, the port-hole is never semi-circular.	5. Port-hole may not or may be there and in any of the orthostats looking east, west, north or south; usually semi-circular and on the edge or at the bottom corner, but rarely circular and in the middle of the orthostats.
6. The port-hole is closed with a rectangular slab enough to cover it completely and approached by a short passage.	6. The port-hole is closed with a slab of any size. Invariably with no passage, leading to it.
7. Coursed cairn surrounding the chamber.	7. No cairn.
8. A circle surrounding the chamber with its cairn.	8. Generally, a wall of orthostats or of coursed rubble wall completely encloses the chamber.
9 Sometimes with ancillary cists in relation to the main chamber.	9. No ancillary cists or dolmens in relation to the main chamber.
10. Found in the regions of Raichur and Bellary, Chitradurga, Kolar and Bangalore and probably Anantapur and Chittoor Dists.	10. Found in the southern part of Raichur Dist. and some part of Bangalore, Kolar, North and South Arcots and Chingleput areas as well as rarely in Yeleswaram and Pochampad areas in Andhra Pradesh.

The slabs (excluding the capstone) of the Hire-Benkal group, are thin, well-cut to the required size and the edges are straightened, unlike the rough thick and large sized slabs of the Aihole-Rajankolur types the edges of which are occasionally crudely dressed. The plan of the chambers of the former is invariably clockwise or contra-clockwise that ensures better stability to the structure than that of the latter. As long as the exterior cairn packing remains undisturbed, there is no possibility of inward collapse of any of the orthostats, as the adjacent orthostats at one end acts as a buttress to it. But in the case of the chambers of the Aihole and Rajankolur types there is no device to check the possible inward collapse of front and rear orthostats. Thus, the plan of the chambers of the Brahmagiri and Hire-Benkal types ensure better stability and is of the advanced stage unlike the rough and primitive architecture of the tombs of the other two types. Therefore, the chambers of the Brahmagiri and Hire-Benkal types chronologically seem to be later than those of the Aihole and Rajankolur types.

The Aihole area seems to be the eastern limit of the passage-chamber of the Konnur type ; beyond this it is very thinly represented eastwards up to Kodekal region. That at some stage the passage-chamber and the port-holed chambers were contemporary is suggested by the presence of a very small number of each type at a site which has predominantly chambers of the other type, e.g. at Aihole and Kodekal. Secondly, the port-hole of the circle, into which extends the passage of the port-holed chamber as at Hagaratgi, seems to suggest that the port-hole elements appears to have been derived from passage-chambers of the tradition of the Kaladgi type. Thirdly, at Aihole the passage chambers of the Konnur type include a double chamber of the Kaladgi type and port-holed chambers of the two types. In the Pattadakal area, there are passage chambers in sandstone, and port-holed chambers, some with double compartments in granite-gneiss.

Further, the architectural features common to the passage-chamber of Konnur type and the port-holed chambers of Brahmagiri type are :

(a) Single or double circles enclosing the cairn packing.

(b) Provision of the circular coursed dry wall, slightly curving inwards near the top and retaining the cairn packing within the bounding circle, e.g. the excavated tomb No. 1 at Hunur (Pl. IV ; 1) and Megalith X at Brahmagiri (Wheeler ; 1948: Pl. LXXXV ; A and B).

(c) The coursing of the walls, as evident in the retaining wall of Megalith 3 at Halingali (Pl. IV ; 2) and that of Megalith X at Brahmagiri.

(d) The dressing of the stone blocks of the walls.

(e) The association of the small square chambers within or outside the bounding rectangle or circle or the coursed wall as at Ghodageri and Konnur and in Megalith X at Brahmagiri.

Similarly, some fundamental common features of the passage chamber of the Kaladgi type and the port-holed chamber of the Hire-Benkal type are : the circle or slab wall closely enclosing the chamber and in distinct cairn filling and varying orientation.

The marginal contacts of the two traditions of the passage chambers, the presence of the passage chambers and the port-holed chambers side by side in the Aihole-Pattadakal area, the disappearance of the passage chamber type beyond Aihole, eastwards the occurrence of port-holed chambers of the two types together though segregated, at the sites of the Aihole-Rajankolur area, the probable insertion of the port-hole element from the passage chamber tradition of the Kaladgi type into port-holed chamber of the Aihole type, the exact correspondence of the two port-holed chamber traditions with the passage-chambers of the two types and the close similarities in the structural details between the two : all these indicate the development of the two types of port-holed chambers from the respective passage chamber tomb-types.

II. *The Unchambered Burials*

v) vi) vii) *Pit-burials and-Circles and Round Barrows*

The Raichur Doab and the adjacent regions, the Shorapur Doab in the north

and the Bellary area in the south are geologically of the Peninsular gneissic complex providing suitable rock-materials for building chamber tombs. Here pit-burials and circles are by far the most numerous, unlike in the Bellary-Anantapur-Chitradurga region, where a number of sites with hundreds of chamber tombs of the Brahmagiri and Hire-Benkal types and pit-circles are found. Thus, the occurrence of the large number of pit-burials, stone cairn circles in the Raichur Doab, or elsewhere is obviously due to certain cultural particularities and not environmental conditions.

These pit-burials and pit-circles are generally concentrated near the nullahs and the rivers.

About 55 km east of Maski, located on the left bank of the Tungabhadra, are 13 megalithic sites, e.g. at Rajalabanda, Gorkal, etc. Similarly, about 65 km. west of Maski is a series of sites in the Malaprabha valley. Thus, they cover a vast area of the Raichur Doab. Similarly, in the Shorapur Doab and in the lower Bhima valley, many sites with pit-and cist-circles were reported by Taylor (1941).

It is noteworthy that most of these burials are found in or near the neolithic/chalcolithic sites. On the other hand, these burials are few in number, if not absent, in the regions where neolithic/chalcolithic sites scarcely exist but chamber tombs are found in a great number e.g. in the upper Ghataprabha sites.

In some rich neolithic habitation sites (like Hirehal, Hole-Alur, Kurugovinkop, Kittur, Kallur (all located in the Malaprabha valley) it is noteworthy that the megalithic pottery of the Maski type is scattered thickly only in some parts of the sites unlike the neolithic pottery which occur all over the sites. The polished black-and-red ware, the all-black ware and the bright red ware are also predominant here.

Similarly, in the chalcolithic habitation sites e.g. at Hingni, Masali, the chalcolithic black-and-red and megalithic black-and-red ware bowls occurred in small numbers in some parts of the sites.

All these evidences suggest that this peculiar distribution of the megalithic pottery, as described above, is probably due to the disturbed graves containing black-and-red ware etc.

In this context it is interesting to note that at Maski no burials were found either in the neolithic phase or in the major parts of the megalithic phase, excepting some sealed by the bottom-most layer of the megalithic phase. The provision of thin layer of ash, extended inhumation and moderate burial furniture distinguish these burials from the other megalithic types. These features are common to the chalcolithic burials (Sankalia et, al. ; 1960 : Fig 20 a). The burials are generally without lithic appendage.

Earlier excavations (ARADH : 1935-36) at Maski had disclosed a number of urns covered with black-and-red ware dishes, and extended burials covered with stone slab enclosures recalling similar pot-burial cemeteries in the chalcolithic levels at Nevasa and Chandoli and suggesting oblong cist-burials respectively.

At Brahmagiri, the burial-pits of the pit-circles are provided with an east-oriented ramp (Wheeler ; 1948 : pp. 194-196). In none of the excavated pit-circles is any cairn packing. The ash bed in Mg. VII (p. 198) ; certain types of pottery such as black burnished lipped bowl i.e., Fig. 14 : p. 16 (p. 216) etc., and copper bangles (p. 199) from Mg. X and human bones from Mg. VII, are in this context noteworthy. A small number of pit-circles are concentrated in area C (Pl. LXXVI), in contrast to the huge number of port-holed chambers used for multiple burials in areas A and B (Pl. LXXIV). All these facts seem to suggest that the pit-circles are regular burials probably belonging to the local people, who were previously in the neolithic stage.

The excavated round barrow at Terdal is typically chalcolithic as it contains exclusively neolithic grey ware, microliths and copper bangle (Sundara ; 1969-70), and had a heavy cairn packing that contained some megalithic potsherds here and there. The disturbed round barrow at Nagavand, which is about 10 km. west of Hallur, yielded typical neolithic pottery, burnished pinkish grey ware and black-and-red ware (Sundara, 1972 a).

The Type : Their Developments

Before ascertaining the implications of the above observations, a word about the oblong cists. They of the chambered tomb class, do not come under any of the six types of the chamber tombs the individual characteristics of which are enumerated above. On the other hand, the burial type but for the simple chamber without port-hole or passage is more akin to the oblong pit-burials and thus more akin to a few types of the unchambered burials as e.g. B (i) and B (v) at Maski. In fact in the earlier excavations at Maski, it is noticed above, there is an example of a rudimentary attempt of erecting a cist for an oblong pit-burial. In Jewargi (Bk), but for the cist there is no difference between the cist-and pit-circles. In Nagarjunakonda in the midst of pit-circles there is occasionally a cist-circle, again the difference between the two being the cist only.

The above evidences indicate that the neolithic people of the Malaprabha valley, of the Shorapur and Raichur Doabs and of the Upper Tungabhadra gradually developed round-barrow, pit-circle, cist-circle types of burials by adding cairn packing over the burial pits, by lining the burial pit with slabs, by inserting passage in the cairn packing, by providing an east-oriented ramp to the pits as at Terdal and Nagavand, Maski, Brahmagiri, etc. They changed over to megalithic pottery and iron as found in Nagavand, Masli (Bk), Hingani, Kittur, Maski, etc. All these developments obviously appear to be owing to the impact of the builders of passage-chambers that are found in or nearby localities. If they had developed themselves megalithism without any extraneous influence, the absence of typical megalithic monuments of the different types of chamber tombs which are found in large numbers in the neighbouring areas such as Hire-Benkal and Aihole-Kyaddigeri, in this area of Raichur-Shorapur Doabs, can not be explained. It is already observed above that the environment of this stretch of the land was not responsible for the absence of these typical chamber tombs. Thus it is most probable that the neolithic people owing to the impact of the vigorous megalith-builders who were actively

erecting rough stone tombs in the nearby areas, gradually developed burials of the round barrow, cairn stone circle types etc. and adopted the black-and-red ware and iron for their burials. Sundara Rajan's observation (1964 : p. 115. footnote 14) therefore, on the Maski burials that they indicate an evolutionary or transitional stage appears to be correct. The present study of the evidences of the larger area, further points out that this gradual development took place *mainly among the local neolithic people owing to an extraneous influence obviously of the nearby passage chamber builders.*

At this juncture it is relevant to recall here wheeler's one of the propositions (1948 ; p. 197) that the pit-circles in Brahmagiri might be macerating pits. I have elsewhere discussed (Sundara ; 1973 : pp. 8-13) that the pit-circles of the type found in Brahmagiri are not macerating pits but actually an indigenous form of megalithic burials of the local people who were in the neolithic stage prior to their contact with the iron using megalith builders and owing to the influence of the latter.

viii) *Menhirs*

In Southern Karnataka menhirs sepulchral in function are found either in association with the port-holed chambers of the Brahmagiri type as at Managonda-nahalli or overlying a pit-burial as in Kerala and probably also at Nilaskal. Thus menhirs form a part of the architecture of chambered or unchambered burials, suggesting the overlap between the types (Sundara ; 1971 f.). At some stage probably practice of erecting a menhir over a pit-burial was begun therefore appears to be of indigenous origin owing to the influence exerted by the megalith-builders, discussed above.

III. Megalithic Monuments

ix) *Stone Alignment*

The stone alignments of the type at Vibhutihalli, non-sepulchral in function, in North Karnataka, do not seem to belong to the South Indian megalithic cultural complex (Ibid) and the date of this type is yet to be ascertained. The only indications suggesting them to be apparently megalithic are : the use of undressed huge boulders or slabs and their situations in the nearby sites with cairn stone circles etc.

x) & xi) *Polygonal Chambers and Rock Shelter Chambers*

These two types are found in the midst of port-holed dolmenoid cist-circles, dolmens with or without port-hole in Hire-Benkal and Bilebhavi only. Their types are peculiar and are found in no other known sites. No antiquities suggesting the function of these types, are found in the chambers of these types. In view of their peculiar and varying plans and of their occurrence in only two sites, whether they are really megalithic burials requires to be investigated.

It is already noted that both the types occur only in the megalithic sites. It may be recalled here that the sites are situated in an extensively long range of hills. Everywhere in these hills rock-shelters abound covered with rubble coursed walls. If such covered rock-shelters belonged to a non-megalithic people of later times, then

it is reasonable to expect similar shelters outside the megalithic sites also. So also is the case of the other type : the irregular polygonal chambers.

Now, it is well known that in prehistoric times especially in the upper palaeolithic, rock-shelters were used as burial vaults, (James, E.O. : pp. 21-28) especially in European countries. Of course, no such prehistoric rock-shelters-burials vaults are found in India. Or to put it precisely no attempt has been made, to explore the rocky regions where prehistoric sites have been found, to find out if there were such burials. In this regard and the recent excavations in the rock-shelters in Lekhahia (IAR, 1963-64) appear to be promising. In the proto-historic period, the most common practice was to bury the dead in the habitation area itself in the Deccan, even if the settlement was on a hill with rock-shelters. The need, therefore, to use rock-shelters for burials did not arise. However there is only one burial No. 5 under a rock cavity known so far of this type from Tekkalakota (Nagaraja Rao ; 1965 a : Pl. IV(b) and Fig. 12).

In the light of the above observations one is inclined to think whether the types in question were also burials ? But no remains of any kind suggesting them to have been used as burial chambers, have been found in those examined by me. Also no burials of the types in the megalithic phase have been noticed. I think that they might have been used in the initial stages disposing of the dead, i.e., for exposing the dead, without burial furniture by the builders of the megaliths till the skeletal remains were ceremoniously deported in a regularly built chambers. This is only a suggestion and requires a thorough examination.

It is worth noting, in this context, that in Annamalai hills at Muccha Kutte Parai some flattish platforms of natural rocks, with their sides delimegalithic and dolmenoid cists, are found (Banerjee ; 1966 : footnote 27). Banerjee thinks that are perhaps macerating platforms.

Some other Peculiar Megalithic Monuments in Karnataka and Outside

i. The imposing dolmen in Motebennur (Pl.XXIX ; 1) is described in the Chap. V. In view of its size and type as can be surmised from the present state of its preservation, it does not come under any of the megalithic tomb types and thus is very peculiar. Whether it is really a sepulchral dolmen or ritualistic altar, requires to be examined.

ii. The megalithic monument at Hunur (Pl. XXIX ; 2-4) described by me elsewhere (Sundara ; 1971 e : 97-102) is unique and quite interesting in view of its cyclopean construction with huge rude stones and its situation in the vicinity of the site with passage chamber tombs.

iii. In Coorg (Walhouse ; 1879 : p. 165) on the hill near Someshvarpeth four dolmens with open sides consist of huge slabs overlying on masses of stones, the largest slab being 3.50 m l. × 2.50 m b. (11.6′, × 8′). Each of them is enclosed in a circle. The dolmens stand out in relief. Walhouse thinks that they are suggestive of altars.

iv. There is another similar monument in Pallikonda (Walhouse : pp. 164-165) about 20 km. west of Vellore (Dist. North Arcot.) Its capstone about 3.50 m l. × 2.50

m b, is supported by six large round boulders ; two at the north and two at the south and two small not touching the capstone. The structure is about 2.70 m.

v. The gigantic slab-stone dolmen in Tiruvalangadu (Srinivasan, et, al ; 1953 : p. 106) consists of a massive capstone slab resting on only two dressed orthostatic slabs, held together by notches cut in their top corners. It has a port-hole also.

In view of their extremely rare and isolated occurrences, of the situations on the eminences, of the typology different from any of the other types of megaliths and of imposing dimensions, it is most probable that they are megalithic altars of ritual or religious centres and therefore of some importance.

3. Modes of Burials

The excavated pit-burials of the classes B(i) to B (iv) and pit-circle of B(v) class of Maski ; of the passage chambers of the Greek or Latin Cross type, the passage circular chamber and cairn stone circle in Terdal-Halingali area and of the passage chamber of the Konnur type in Hunur, have disclosed five types of burial rites. Of these, owing to the previous disturbances to the excavated megaliths in Terdal-Halingali area and in Hunur, evidenced regarding the burial rites there, are scanty and obscure. However, some idea about the burial rites from the excavated materials and from the types of tombs can be had. Besides, the disturbed pit-burials from Gajendragad and the excavated megalith in Jewargi (Bk), Andola, Chikanhalli, Lingsugur and Kadkol, are considerably informative in this regard.

I. *Inhumation Burials Containing* :

i) Single, extended, articulated skeleton on an ashy bed, the skull being towards north and turned to the west. [(Maski : pit 15 of class B(i)]. Nagarjunakonda : cairn stone circle and Megalith XIV with north-south oriented, skeleton on the ashy bed. While Megalith XV was similar to Megalith XIV, the skeleton therein was east-west oriented with skull towards east, turned southwards.

ii) Single, partly disarticulated, skeleton on ashy bed resulted on account of burning six or seven wooden sticks in situ in the grave pit, the skull being towards north and turned towards west.

Maski : pit 16 of Class B(i).

iii) Single, extended, articulated skeleton on any ashy bed with skull towards north and turned towards the sky.

Maski : pit 28 of class B(i). This contained bone pieces of domestic sheep also.

iv) Single skeleton, partly flexed condition the skull being towards south and turned eastwards, seems to be an aberration.
Maski : pit 28 A of Class B(i).

v) Single, articulated extended skeleton, the skull being towards the west.
Maski : pit 30 of class B(iv).

II. *Scondary, Post-Excarnate Fractional Single Burial*

Maski : probably pit 2 of class B(ii)
„ „ 1 of „ B(iii)
„ pit circle „ B(v)
Gudageri-Unachgeri area: Megalith I.
and also the one nearby Megalith I.
Gajendragad-Rajur area : Megalith II.
Jewargi (Bk) : Second cairn.

Cf : Nagarjunakonda : Megalith IV. Further, Megaliths V, VI, X, XIII are post-excarnate, secondary, multiple burials on ashy or lime bed. While Megalith V was east-west oriented, the others are north-south oriented. All these megaliths are pit-circles.

III. *Secondary, Post-Excarnate Fractional and Multiple Burial*

This seems to be the type of burial in the passage chamber tombs of the Konnur type and of the Greek or Latin Cross type, for the following reasons :

i) The area of the chamber and the erection of pillars within the chamber would not permit extended burial.

ii) A port of red ware containing small quantity of fragments of bones, was found in Megalith I, Terdal, of passage circular chamber at Terdal.

iii) The plan of the passage chamber of Greek or Latin Cross type and the presence of what appear to be iron saucer lamps in different parts of Megalith III, Halingali. suggest that the tombs were meant for secondary multiple burials, used and reused as and when required. The tombs are apparently family vaults.

IV. *Single or Multiple, Extended and Multiple Fractional Burials*

These two types of burial rites are together found in many of the excavated megaliths in Jewargi (Bk) and Andola.

i) Single extended and multiple fractional burials.

Jewargi (Bk) : Cairn A (or First Cairn) of cist-circle type.
Andola : Cairn 2 of cist-circle type

ii) Multiple extended burials and multiple fractional burials.

Jewargi (Bk) : 4th cairn of cist-circle type.
Cairn B of „ „
Cairn D of „ „
Cairn E of „ „
Andola : Cairn L of cist-circle type.

In the double compartmentalised cist of Cairn D, two skeletons of male and female in extended way curiously one upon the other with another skull in the middle in the eastern compartment were found, besides, a skull outside the cist in the northern side.

In Yeleswaram (Waheed Khan ; 1963 : pp. 7-8, Pl. VII) the excavated cairn stone circle contained two skeletons one lying on the other.

A megalith of the cist-circle type of Jewargi (Bk) group, was excavated in

Yeleswaram (Waheed Khan; 1963: pp. 4-5. Pl. II. A, B and C). The cist, north-south oriented, is double compartmentalised. In one of the compartments were two skulls, ribs, mandibles and some of the long bones and in the other, one skull and some fragments. The skulls were placed towards the northern end.

A burnished red ware vase with everted rim, squat body and pointed base (Waheed Khan ; 1963 : Fig. 1 ; 1); a small black-and-red ware with everted rim, concave neck and globular body graffitti on the interior and exterior (Fig. 1 ; 3) ; a vase of black-and-red ware with outturned edge, slightly squat body and truncated flat bottom and graffitti on both the sides (Fig. 1 ; 2a); a bowl of black-and-red ware with featureless edge slightly convex body and truncated flat bottom (Fig. 1 ; 4) and a belt-shapped lid of all black ware (Fig. 1 ; 2), are found.

The pottery taken together from the other excavated megaliths of this site are burnished and polished and include some new types also such as the perforated ring stand (Pl. III ; 1).

Similarly, in Nagarjunakonda (IAR ; 1956-57 : p. 36) an oblong cist without port-hole, contained three skulls and many long bones and outside the cist were found damaged skeletal remains, iron objects and pottery including the black-and-red ware. Megalith VII had an oblong cist-containing two human long bones, a copper amulet and some animal bones. Outside the cist were 17 pots, three iron objects and splinters of bones.

On the analogies of these three systematically excavated examples of the complex of the cist-circles of the Jewargi group (but for the passage in the cairn packing), it can with certainly be inferred that the mode of the burials of the cist-circles of Jewargi group, are post-excarnate, secondary single or multiple fractional burials. And the skeletal remains were laid in disarticulated and roughly extended way (partly owing to the narrow space of the oblong cist).

V. *Post Cremation Burials*

Secondary inferring of calcined bones usually in pots which were ceremoneously placed with very moderate burial furniture in pits without surface indications, as found in the pits with cairn stone circles on the surface as at Chikanhalli.

I From the above analysis it is evident that :

i) Some pit-burials or pit-circles are probably primary, articulated, extended, single burials and usually north-south or rarely east-west oriented with head towards north or east respectively. The skeleton is usually placed on an ashy bed and attended with moderate burial furniture. These burials are closely akin to the chalcolithic or neolithic burials.

ii) Pit-burials and pit-circles mostly contain post-excarnate, secondary, single or multiple fractional burials.

II iii) Pit burials and pit-circles may occasionally contain post-cremation burials.

iv) The passage chambers contain post-excarnate secondary, multiple fractional burials.

v) Cist-circles are post-excarnate, secondary multiple and fractional burials, roughly extended or otherwise.

vi) The rituals in a few cases, sometimes, included sacrifice of animals.

vii) The builders of the pit-burials and pit-circles observed variously all the types of burial rites.

viii) The chamber builders (excepting of the oblong cists of the Jewargi type) practiced mostly the post-excarnate secondary multiple fractional burials.

III ix) The builders of the cist-circles of Jewargi (Bk) group of course practised post-excarnate, secondary multiple, fractional burials, but roughly extended and otherwise.

x) And, thus, there appeared to be atleast three broad sections of megalithic folk as distinguished by the three broadly classified practices and the authors of the pit-burials were heterogeneous in composition.

The above observations are limited to the evidences from the excavated megalithic burials.

4. *Pottery*

A study of the pottery from the excavated and explored megalithic sites described in the Chap. VII, has revealed that :

The pottery from the habitation sites as well as the excavated burials are of the same fabrics and types and in four fabrics : the black-and-red ware, the all-black ware of polished and slightly burnished varieties, the bright red ware and the coarse red ware.

Occasionally, the pottery of any of the wares has mostly post-firing and vary rarely pre-firing scratched lines or linear designs called graffiti.

5. *Graffiti*

In my collections of pottery from some megalithic habitation sites and from the disturbed burials of North Karnataka, there are only nineteen potsherds and vessels having graffiti.

Of the graffiti marks seven are from the disturbed pit-burials of Guledgudda near Aihole and eight from the habitation sites with neolithic and megalithic cultural remains at Kallur, Tk. Ramdurg, Dist. Belgaum.

In Maski (Thapar ; 1957 : pp. 86-88) out of the nineteen different graffiti marks, five are from the burials of class B (i) ; one each from the burials of classes B (ii) and B (iii) ; five from the burial of class B (iv) ; four from the partially excavated burials. No graffiti was found on the pottery from the burial of class B (v), which is noteworthy.

In Brahmagiri (Wheeler, 1948 : pp. 244-45) ten pottery vessels from pit-circles have graffiti of four types and thirteen from the cist-circles, graffiti of eleven types. And two are from the habitation site. These two in type are different from each other and from the others. Only the fifth type is common to the pit-and cist-circles.

In 1947 Chandravalli excavations, (Ibid, p. 274) no megalithic burials were found. The pottery of the megalithic fabric from the lowest layer (13 N) do not bear any graffiti.

The megalithic pottery from the two excavations (Subba Rao, B ; 1948 ; Ansari Z.D. & Nagaraja Rao, M.S. ; 1969) of the habitation sites at Sanganakallu, are not reported as having graffiti. In my explorations of this site a few potsherds bearing graffiti were collected. Not far away from this site are megalithic stone circles apparently of the pit-circle type.

The Jadigenahalli (Seshadri, M; 1960) pit-circles containing sarcophagus, yielded a large number of pottery bearing graffiti. These graffiti are of eight types. In the earlier excavations of the megalithis i.e. cists in Savanadurga (Branfill, B.R. ; 1881 ; pp. 1-12) in the same region, also were found pottery some of which had graffiti marks.

Similarly, the excavations of the habitation site at T. Narasipura (Seshadri, M; 1971) brought to light numerous pottery with graffiti of varieties from the megalithic levels thereof.

In contradistinction to the presence of graffiti on the pottery from the above sites, curiously enough not even one graffiti is hitherto found on any of the pottery from my excavations of the megalithic passage chamber tombs in Terdal and Halingali and from the disturbed burials of the other passage chamber tomb sites such as Hunur, Gudi-Kyatara etc. collected and studied by me in detail.

Outside Karnataka, varieties of graffiti, usually linear designs of different types, are very common in the eastern part of South India as at Sanur (AI No. 15 ; 1959 : p. 32) Souttoukeny (Casal, J.M. ; 1956 : Figs. 27 and 28) and Sengamedu (Banerjee, N.R. 1956 a : pp. 43-46). It is also noted that graffiti on the pottery were profuse from some megaliths, but rare or absent from some others.

But in the western part of South India with many megalithic sites having large number of chamber tombs as in Coorg Cole, R.A. ; 1868 ; pp. 151-55, 243-45 and 1869 : pp. 54-59, 184-86 and 202-203) Kajekaru (Sundara, A. ; 1974a) Pulney, (Anglde, Rev. A and Nowton, Rev. L. A. ; 1928 : No. 35, pp 1-18) megalithic pottery with graffiti is strikingly rare as e.g. at Porkalam (Thapar ; 1952 : pp. 86-88).

From the above rapid survey of the geographical distribution and the proportion of the graffiti on the megalithic pottery in Karnataka in particular, it is observed that graffiti is found :

1. Scarcely, if not absent, in the passage chamber tombs in North Karnataka.

2. Moderately in the pit-burials and-circle at Maski and other megalithic sites in the regions of Shorapur and Raichur Doabs, and further south of Raichur, in the pit-circles of Brahmagiri area. It is noteworthy that here they occur in the cist-circles also more or less in the same proportion.

3. In profusion in the megaliths of farther south of Raichur Doab in Bangalore and eastern part of Karnataka regions.

4. Again, in abundance in the eastern part of South India, excluding the extreme south with urn-burials.

5. Comparatively in very small degree in the western part of South India.

From the above observations in may be inferred that graffiti is not a regular

feature of the pottery of all the types of megaliths. It occurs moderately in the region of lower Krishna-Tungabhadra valley and in profusion in the adjacent southwestern part of Karnataka and eastern part of Tamil Nadu excluding the extreme south.

The exclusive non-occurrence of graffiti in the pottery of the passage chambers and their moderate occurrence in those of pit-burials, cist-and pit-circles in the Krishna-Tungabhadra valley appear to be significant. As elaborately discussed above and elsewhere (Sundara, A; 1973 : pp. 239-251) of the many types of megaliths in Karnataka the passage chambers of Konnur and Kaladgi types are the earliest types and the pit-burials/circles, round barrows were indigenous types developed among the local people who were in the neolithic stage before their contact with the Iron Age megalith-builders (i.e. of the passage chambers) in the Shorapur and Raichur Doabs. Also, the port-holed chambers of Brahmagiri and Hire-Benkal types are evolved from the earlier chamber tombs. In this context, it becomes obvious that the graffiti was not the original cultural feature of the earliest Iron Age megalith-builders. It appeared moderately in the local types of megaliths developed by the indigenous (i.e. earlier neolithic) people and was gradually introduced into the developed megalithic culture represented by port-holed chambers of Brahmagiri type. And it was only in the late phase of the culture, this feature is conspicuous by its profuse occurrence.

But in the neolithic culture of the Krishna-Tungabhadra valley, graffiti does not occur as a normal feature in any context. If so, the overlap of the megalithic culture with the neolithic and the subsequent development of local megalithic types and the use of the graffiti feature in the burial furniture do indicate only the stage at which this feature was introduced into the megalithic culture, but not its source. In this connection I have elsewhere (Sundara, A, ; 1968 : pp. 183-203), explained in detail how the chalcolithic culture of the Godavari valley, characterised by the painted black-on-red ware pottery of Jorwe fabric and the black-and-red ware with the tradition of graffiti had diffused along the Bhima into the uppermost neolithic culture of the Krishna-Tungabhadra Doab, when the Iron Age megalithic culture also intruded into this region. Some of the black-and-red ware types and the graffiti tradition of the chalcolithic culture (Lal, B.B. ; 1962 : pp. 4-24) percolated into the overlapping stage of the neolithic and megalithic cultures. The diffusion or the influence of the chalcolithic culture was felt as far down as the Kaveri valley as evident from the stray examples of fluted cores produced by the crested guiding edge techinque, black-on-red painted pottery and chalcolithic black-and-red ware bowl found in the uppermost layer of neolithic in T. Narasipura. It also probably suggests as to why graffiti occurs in profusion in the region coming under the influence of the chalcolithic culture especially in the indigenous types of megalithic pit-burials/circles, round barrows etc. and is very rare if not absent in the passage chamber tombs of Karnataka and Western Tamil Nadu and Kerala regions, where the chalcolithic influence was the least.

Thus it appears that the Krishna-Tungabhadra valley, is the area where the element of graffiti of the chalcolithic culture had percolated into the megalithic cultural complex (Sundara, 1972c).

Fabrics, Types and Distributions

From the pottery of the passage chambers tombs of Weste rn Karnataka, it is observed, the black-and-red ware pottery is comparatively and in proportions with the other wares, much less. Conversely the red ware pottery is predominant. Secondly, while there are some new types of lids, dish-on stands, etc. bright red ware vase with collared rim, coarse, red ware lid with flanged waist are in overwhelming number. The range of types in the red ware fabric, is comparatively limited. Varieties of vases witheverted edge, oblique sides, carinated body or with externally thickened, grooved edge decorated with incised rope design etc., shallow platters with internally heavily beaded edge, in red ware; dishes with everted or externally thickened and truncated edge, oblique or vertical short sides, carinated body, sagger base, bowls with featureless edge, concave sides, carinated body and round or sagger base; tulip shaped bowls; funnel shaped lids; connoids; small vases with outturned featureless edge, carinated neck, squat body and rather pointed base, which are so common in the megaliths of cairn stone circles, pit-burials etc. of the Raichur Doab, are scarcely found if not absent. On the other hand, lids with flanged waist, vases with collared rim are not so frequent in the sites of Raichur Doab.

In the sites of the upper Tungabhadra, as far down as Sanganakallu the black-and-red ware is exceedingly high while the red ware is very poor in quantity. Further, bowls with featureless edge, slightly concave sides, carinated body and sagger or round base; dishes with externally indistinctly beaded edge, vertical sides, carinated body and sagger base, hemispherical bowls with flaring profile; neckless vases with everted edge, squat body and sagger base and vases with out-turned flaring or out-curved rim, globular body : these of usually thin to medium size, are the chiefty pes. The pottery is occasionally white painted.

It is explained elsewhere (Sundara, A. 1972 d : pp. 119-125) this pottery differs considerably from the megalithic black-and-red ware of Maski, Brahmagiri.

Tulip shaped bowls, funnel shaped lids, hemispherical bowls of megalithic fabric, of course, occur comparatively in small number.

In the red ware, the most common type is a base externally thickened, grooved and decorated with incised rope design. Besides, there occur a kind of light pinkish red ware as known from a disturbed round barrow at Nagvand different from the megalithic red ware and in types and fabric more akin to the neolithic burnished pinkish grey ware pottery of that region and reddish brown ware pottery, in fabric and types rather akin to the rather coarse neolithic grey ware pottery and megalithic red ware pottery, as found in the habitation site at Kamalapur.

It is pointed out already that some of the Hallur black-and-red ware pottery types are closely analogous to the chalcolithic black-and-red ware pottery types.

As mentioned above, I have shown elsewhere (Sundara; 1968) how the chalcolithic culture of the Godavari valley, characterised by the black-on-red ware pottery of Jorwe fabric and the black-and-red ware pottery occasionally with white paintings had diffused along the Bhima valley in the Krishna-Tungabhadra Doab, and the black-and-red ware pottery of the intruding culture, evidently different from the

megalithic black-and-red ware pottery was the source of the black-and-red ware pottery with white paintings of the types found in Tekkalakota neolithic burials.

Allchin had discovered at Piklihal that some pottery of the uppermost neolithic phase were grey, buff, olive green and black approaching black-and-red ware pottery.

At Watgal I could collect a considerable number of chalcolithic black-and-grey ware pottery of especially the hemispherical bowl type.

At Brahmagiri also I could collect black-and-red ware pottery of the fabric found in Hallur.

A few more sites (Nagaraja Rao ; 1964 : pp. 71-72. Figs. 4 and 5) along the Tungabhadra with this pottery further downwards from Hallur are already reported.

From the above survey of the evidences two things are evident : (1) there was an intrusion of the chalcolithic culture with white painted black-and-red ware ; and probably at the instance of this intrusion, in the uppermost neolithic phase was developing the local black-and-grey ware, and (2) the black-and-red ware of the Tungabhadra valley from Hallur to Sanganakallu, including to some extent Brahmagiri, was intimately akin to this black-and-red ware of the uppermost neolithic in the chalcolithic stage.

It is therefore most probable that the black-and-red ware phase of the Tungabhadra valley was developed locally from the incipient black-and-red ware phase of the upper-most neolithic.

If the megalithic black-and-red ware is further developed from this black-and-red ware of the early phase, either here or somewhere outside the region, is not clearly evident.

In South India, at Tirukkampuliyur (Mahalingam, T.V. ; 1970 : p. 15, Figs. 6, 7), the earliest cultural phase was characterised by plain and white painted black-and-red ware, plain black-and-red ware and the russet coated white painted ware pottery. The white painted black-and-red ware gradually diminishes in proportions towards the end of the period, while the other two pottery fabrics continue. Near this site are urn burials without lithic appendage. Elsewhere in this region the white painted black-and-red ware pottery is found in T. Kallupatti (IAR ; 1960-61 : p. 18), Perumbair and Madura (Subba Rao ; 1958 : p. 176, Fig. 43). While the paintings from the first site are linear, those from the latter two are dotted. It is required to be examined if the white painted black-and-red ware pottery in that region and constitutes a phase earlier than and different from the megalithic black-and-red ware phase. However, it is evident in Tamil Nadu too, that there is a phase with the white painted black-and-red ware pottery and is the earliest phase of the megalithic culture. But it is later in date as it is associated with the russet coated white painted ware pottery than that of Hallur and the other sites of the Tungabhadra valley.

Now, the presence of certain typical megalithic pottery in this phase is obviously due to the intrusion of the Iron Age megalithic culture as evidenced by the passage chamber tombs of Bhairavanpada and of the cist-circles of Brahmagiri.

Whether this black-and-red ware phase was already in Iron Age before the intrusion of the Iron Age megalithic, is not clearly evident. For while iron occurs in the early overlapping black-and-red ware phase at Hallur, it is absent in the

corresponding phase at Sanganakallu. At this Juncture, it is, noteworthy that no megalithic passage or port-holed tomb types of the early phase of this region, is so far noted near Sanganakallu. Does this suggest that the iron found in the early phase of the overlapping black-and-red ware phase at Hallur, was due to the intrusion of the Iron Age passage chamber builders there ?

5. *Iron and other Metal Objects* :

i) *Iron Objects*

Of the metal objects, those of iron are much more than those of the other metals such as gold and copper.

Iron objects were obtained from the megalithic habitational deposits at Maski, from the overlapping black-and-red ware phase at Hallur and from the megalithic burials at Maski, Gaudageri-Unachgeri, Gajendragad-Rajur, Jewargi (Bk), Andola and at Halingali. Usually, the objects in the megalithic burials are a few in number.

The types of objects are as follows :

i) Spear or arrow heads.
ii) Daggers or knives.
iii) Lances.
iv) Axes.
v) Sickles.
vi) Saucer lamps.
vii) Nails.
viii) Chisels.
ix) Tripod stands.
x) Bangles.

Of these, objects of the first three especially the first two types, are very common suggesting hunting economy of the megalith-builders and found in many of the excavated burials and in the early levels of the habitational deposits. Comparatively, objects of the other types, are not so frequent.

It is particularly noteworthy that only sppear, and arrow heads and knives were found in the habitational deposits at Hallur.

No weapons like daggers, lances, axes etc., were found in Megalith III, the passage chamber tomb of the Latin Cross type at Halingali and instead, objects of domestic use such as probably saucer lamps etc. were got. Of course the tomb was earlier disturbed and it can never be correctly known to what extent the burial furniture including the iron objects, were irrecoverably destroyed during the disturbances. Secondly, considerable number of undisturbed passage chamber tombs have not been excavated in order to have a general idea about the nature and types of iron and other objects that are rather commonly found in the tombs of this type.

Sickle and tripod stand appear to be rather common in the passage cairn stone circles of Jewargi (Bk) and further east in Hyderabad, Raigir, etc. of Andhra Pradesh region. However, it is uncertain whether all the objects from the excavated megaliths of Jewargi (Bk) group, giving a complete range of the burial furniture were recorded.

In Brahmagiri, the iron objects from the excavated megaliths are large in number and varied. Megalith VIII i.e. port-holed cist with passage alone contained nineteen objects. Tanged knives or daggers are predominant. Axes and sickles are many. Iron plate, a unique chopper like object which is identified as plough-coulter (Dhavalikar, M.K. ; 1968 : pp. 137-38), are some new types. Further south of Brahmagiri,

in Jadigenahalli the excavated four megaliths yielded a number of iron objects of varied types (Seshadri ; 1960 : pp. 24-26, Figs. 18-19), such as tanged sword, hoe or adze, tripod stands, plates with handles, etc. Tripod stands and swords are more in number. In Sanur (Banerjee, et. al ; 1959 : pp. 34-37, Figs. 1 and 10), the number of iron objects from the excavated five megaliths varied from two to twenty-six, consisting of mainly swords, wedges and hooks. In Adichanallur (Alexander ; 1915 : pp. 14-21. Pls. II-V), a very large number of varied iron objects had been found. But the urn burial at Porkalam (Thapar ; 1952 : p. 16) had yielded only three objects including a dagger. Similarly the iron objects from each of the excavated megaliths at Nagarjunakonda, ranged from one to eleven.

From the above passing comparisons, it appears that the iron objects are comparatively few in number and the arrow heads are predominant in North Karnataka, and very rich and varied in the eastern part of South India, indicating probably a further development.

Regarding the source and chronology of the iron associated with megaliths, various theories (Banerjee ; 1965 : pp. 76-144, 177-215 and p. 233, Subrahmanyam ; 1966 : pp. 69-78. Soundara Rajan ; 1963 : pp. 79-80, and 1963 : pp. 1-21), in the light of the recent discovery of iron in the early levels of non-megalithic black-and-red ware and the Painted Grey Ware Cultures in North India, dated between circa 1,000-7,00 B.C., have been put forward. Accordingly both black-and-red ware and iron were diffused from North India to the South along with megalithism. Prior to the discovery of iron of early date in North India, it was surmised that Iron Age was ushered first by megalith-builders in South India and gradually thereafter in the North.

In North Karnataka, now, iron is found in the black-and-red ware levels almost of the same time as that of the mid-phase of the Painted Gray Ware levels of Atranjikhera mentioned above. Charcoal samples from the layers 4 and 5 of the overlapping black-and-red ware phase of the trench HLR-1, in Hallur are dated by C-14 determination to circa 1055 and 955 B.C. respectively. It is noteworthy that there is only one C-14 determination giving a very early date i.e., 1025-105 B.C. for the mid-phase of the Painted Grey Ware Culture at Atranjikhera, other C-14 dates at this and other sites, are late (Tondon, O.P. ; 1967-68). Further, it is remarked that the cultural levels preceding and succeeding the Painted Grey Ware phase, do not appear to be very firmly defined (p. 55). On other hand, the two C-14 dates for the early part of the overlapping phase at Hallur, are consistent with each other. Secondly, other C-14 dates for the upper part of the neolithic culture in the Krishna-Tungabhadra valleys immediately preceding the overlap of the neolithic and the Iron Age megalithic culture, corroborate the C-14 dates of the overlap phase at Hallur.

The dates are :

Sanganakallu

TF-359	layer 4	Early neolithic	1550	B.C.
TF-354	layer 3	,, ,,	1590	B.C.

Hallur

TF-575	layer 7	Upper most neolithic	1030 B.C.

Similarly, the chalcolithic culture in the upper Bhima as per C-14 datings for the sites in Chandoli and Songaon, seem to have come to an end by about 1000 B.C.

Chandoli	layer 2	1330± 70 B.C.
		1300± 70 B.C.
		1240±190 B.C.

It is noted already (Sundara ; 1968) that this chalcolithic culture had intruded along the Bhima valley into the uppermost neolithic culture of the Krishna-Tungabhadra valley, probably slightly earlier than the intrusion of the megalithic culture there. The time gap between the two intrusions is very small. Thus 900-800 B.C. for the beginning of the overlap of the neolithic in the chalcolithic stage and the megalithic cultures, is obviously the most reasonable period which corroborates the C-14 datings of the overlap phase at Hallur. Thus by about 1000-900 B.C. iron was already in use in North-Karnataka. Thus the possibility of the introduction of iron gradually from the North into the lower Deccan and South India subsequent to the first use by either the users of the Painted Grey Ware or the black-and-red ware pottery in the North, does not seem to have support.

In the light of the excavations of Ash Mounds I and II at Palvoy (Dist. Anantapur) by Dr. V.R. Reddy (1972 : pp. 125-135), the excavator is inclined to think that the ash mounds were probably ovens for smelting iron (see also Sankalia ; 1968) by post-Neolithic communities. In North Karnataka, I have noticed many sites with ash mounds (Pl. XXX ; 1,3) along the Krishna valley (Sundara ; 1971b : pp. 308-314). My study of these ash mounds indicates that they were probably connected with iron smelting activity.

Thus in view of the rich sources of iron ore of high grade in the Western Ghat and Coastal regions where iron are pebbles could be easily got from the surface itself of the latterite hills and in Hospet-region, of the early date for the beginning of the use of iron as evidenced at Hallur and if the observations of the findings from the excavations of the Ash Mounds I and II at Palvoy and the suggested implications of the ash mounds noticed by me are further proved correct, an independent local origin of the primitive iron smelting activity in North Karnataka would not be improbable. It appears, therefore, that Sundara Rajan's alternate observation about the possibility of indigenous working of iron in view of the immense source of iron in this region, may be correct.

As observed rightly by Tondon (1967-68 : p. 59) that mere occurrence of some iron objects for the first time in a particular cultural assemblage in a region, need not necessarily imply the beginning of Iron Age, like the presence of one or two copper objects in an otherwise neolithic culture, would not make the culture at once chalcolithic. The beginning of Iron Age is involved in the technology of prospecting iron ores and of smelting, and in the utility of iron in the field of production and its striking impact in the different fields of social life. From this angle of study, the possible

implications of the ash mounds in North Karnataka and Southern Andhra Pradesh, seem to be significant. What is now required, again as suggested by Tondon (p. 59) is a chemical, technological and typological study of iron objects, iron ores and other associated remains of each region to solve the problem of the beginning of Iron Age in India.

ii. *Copper and Gold Objects*

Copper objects are very rarely found in the excavated megaliths or in the megalithic habitational levels in North Karnataka.

From the megalithic habitational levels at Maski, only four copper objects (Thapar 1957 : pp. 114-115) were got, of which one was a piece of bangle of elliptical section. No copper objects were found in any of the excavated burials in this site.

Megalith III, the passage chamber tomb of the Greek Cross type in Halingali yielded respectively a small rectangular thin plate with two notches at the corner, probably a rivet to some other object.

In Brahmagiri, Megalith IX (Pit-circle) was found to contain four plain copper bangles (Wheeler ; 1948 : p. 260).

Gold Objects

A standard convex hexagonal gold bead (Thapar ; 1957 : p. 109, Pl. XXVII, 21) and a small indeterminate fragmentary leaf from the megalithic phase in Hallur, were got.

In Brahmagiri, there were thirty-three gold beads in Megalith IX (Pit-circle).

Of course, gold and copper objects are found in the preceding neolithic cultural levels also. A copper axe from the early phase of the neolithic culture of Tekkalakota (Nagaraja Rao; 1965 : p. 76) and fish books, small double edged axe on thin copper plate from Hallur (Nagaraja Rao ; 1971) and a chisel and two small rods from Brahmagiri (Wheeler ; 1948 : p. 202) and a copper bangle from a neolithic round barrows at Terdal (Sundara ; 1969-70 : pp. 23-33) and two gold ornaments (Nagaraja Rao, 1965 : p. 75) from the early phase of neolithic culture in the first site, are some instances. In view of these occurrences and of the overlap of the neolithic in chalcolithic stage and the megalithic cultures in this region, it should be clearly vindicated whether the production of the objects of these metals from the megalithic levels should be ascribed to the megalith-builders. In this connection certain types and provenances of the objects appear to be significant.

Most of the objects mentioned above are from the megalithic burials, Copper bell obviously in use in the rituals of the burials, is not found in the neolithic cultural levels. Hampton and Dr. Bell got a copper bell with an iron tongue from one of the excavated megaliths in Maula Ali near Hyderabad (Taylor ; 1941 : pp. 65-66 and Pl. XVIII). Hough found two bells (Taylor ; p. 173) in one of the excavated megaliths at Coonor in Nilgiris. Occurrences of gold objects are extremely rare in the neolithic levels, while gold objects are comparatively large in the megalithic burials. Megalith XIV in Nagarjunakonda contained thirty-five gold beads and eighteen silver saucers, like Megalith IX of Brahmagiri.

6. *Rock Paintings*

The discoveries of about ten rock-paintings in the vicinity of the megalithic site at Hire-Benkal (Sundara ; 1972) are referred to in the Chap. V of them Nos.1,4 and 6 seem to have some bearing on the megalithic culture of the region. Rock-paintings are found in many other places, in the Dists. of Gulbarga and Raichur. They are located in rock-shelters of mostly of granite-gneiss and rarely of the sandstone hill ranges in Bijapur Dist. Those noted so far listed below.

TABLE

List of the Sites with Painted Rock Shelters in North-Karnataka

No.	*Locality*	*Taluka*	*District.*	*Find-spot*
1.	Sanganakallu	Bellary	Bellary	"Sannarasamma" hill.
2.	Tekkalakota	Shirguppa	,,	"Hajārmaṭṭi" hill.
3.	Venkatapura	Hospet	,,	"Vāli Dibba" (An Ash Mound)
4.	Anegondi	Gangavati	Raichur	Near the turning to the 'Pampa Sarovara'.
5.	Chik Rampur	,,	,,	"Onake Khindi" hill.
6.	Hire-Benkal	,,	,,	"Durgada Daḍi" Hill.
7.	Kallur	Manvi	,,	Near the excavated ancient site.
8.	Piklihal	Lingsugur	,,	,, ,,
9.	Balchakra	Yadgir	Gulbarga	
10.	Badami	Badami	Bijapur	"Sitidoṇi" hill (on the way to 'Shidlaphadi').
	At nos. 2, 7, 8 are also rock bruisings and engravings. Only rock engravings and bruisings are found in the following sites.			
11.	Tawargeri	Kushtagi	Raichur	"Timmappa guḍḍa" (S. Nos. 198-99).
12.	Kalhalli	Jamkhandi	Bijapur	'Gombi guḍḍa'.

Of these, Nos. 3 to 5 and rock-paintings Nos. 4 to 9 in Hire-Benkal and the rock-bruisings in Tewargeri were discovered by me and the rest were previously noticed.

The chronology of these paintings and bruisings, is neither self-evident nor established. They may range at least from the neolithic to medieval period if not earlier or later. However, many of them as for instance at Chik Rampur, in veiw of their proximity to the nearby neolithic sites, of the predominance of cattle such as ox or cow in the painted figures and of the style of their representations are perhaps of the neolithic period. Likewise, some of the rock-paintings Nos. 1, 4 and 6 in Hire-Benkal, as mentioned above appear to be most probably of the megalithic period as they are situated far away from the neolithic site and contain figures of hunters on horse back

holding varied types of weapons apparently of iron. These rock paintings in Hire-Benkal are therefore described below.

Rock Paintings in Hire Benkal

As mentioned above there are nine rock-paintings numbered for convenience of reference, as 1 to 9, so far known near the megalithic sites in Hire-Benkal. Nos. 1, 4 and 6 are described below.

Rock-Paintings : Locations and Descriptions

Rock-Painting No. 1

This is situated to the south-east of the Durgada Dadi nearby. There is an approach way indicated by arrows battered on the boulders on the slopes and on the hill at irregular spaces leading to the rock painting. The way is on the eastern side of the Durgada Dadi. And from this painted rock-shelter the way is made to the western group of the megaliths which is only less than half a km. Many local people know the situation of this rock painting and the group of megaliths. In this are found the figures of human beings, cows, bulls, peacocks and dogs.

It was described first in the Annual Report of the Department of Archaeology of old Hyderabad State (1934-35 : Appendix D) and subsequently by Gordon (1955 : p. 97).

Rock-Paintings No. 4

On the eastern side and close to the central group of the megaliths are two rock-shelters one beside the other. The paintings in both the shelters are rather too faint for identification by untrained eyes.

The eastern rock-shelter has horse riders, a peacock, and antelope, three dancing persons (shown in lines) hand-in-hand.

In the western shelter are again dancing persons. The other figures are very faint.

Rock-Painting No. 6

A rock-shelter is situated just below the Durgada Dadi on the middle of the northern slopes of the hills, commanding the view of the cultivated fields in the plains below and also of the two villages Hire-Benkal and Chick Benkal, about a km. and S 200° west of the former. It is formed of three huge boulders with flat surfaces one at the top, one at the back on which rests the top-one and one at the bottom that abuts the rear one. It looks north-northeast. The facade of the shelter measures 8 m l x 2.50 m b x 1.60 m.

It is on the vertical well of the rear boulder and on the ceiling of the top boulders a large number of figures : humans and animals, in red ochre, is found.

(*a*) *Paintings on the Ceiling*

Measure : 6.30 m l x 20 m broad.

On the ceiling are depicted human figures with weapons such as bows and arrows, axes having splayed out working edge, some standing on horsebacks with weapons in their hands, groups of men hand-in-hand, humped bulls and cows, peacocks, stags, a tiger (with bands shown on the body) that seems to have caught a stag and a

geometrical design i.e. two sets of three parallel lines cutting each other at right angles forming four squares each with diagonals and the projected ends of the lines being connected with a festoon like line in brown ochre.

(b) *Paintings on the Hind Wall*

The painted area measures 2.55 m l x 1.10 m.

Here, the figures are faint and rather dark pinkish. The figures, comparatively a few in number, are antelopes, bulls, a horse-rider and a group of men hand-in-hand.

From this shelter were collected a neolithic grey ware pottery piece of Maski fabric and some potsherds of megalithic red ware and black-and-red ware. It should be noted here that a few meters above the rock-shelter, is the megalithic habitation site mentioned above. It is, therefore, probable that the potsherds in question might have been washed down into the rock-shelter from the habitation site. And it is quite likely that the megalithic cultural debris may well overlie the neolithic debris as feebly indicated by the presence of worn out neolithic grey ware potsherd. There is the neolithic habitation site with ash mound near the village, it is mentioned above.

Rock-Paintings Nos. 1, 4 & 6 : A Critical Analysis

Rock Painting No. 1

The figures delineated can be grouped as follows :

I. Human figures.

II. Animal figures.

I. *Human Figures*

There are about 68 human figures, all shown in standing postures. Some are in rows, consisting of 15, 11, 8, 3, and 2 persons. A row of two persons is repeated thrice at different stops. These human beings in rows, are hand-in-hand suggesting them to be in dancing posture. One of the or both of them extreme figure in these rows, sometimes, hold in one of their free hands weapons like an axe with splayed out working edge, lance with spikes at one end, sword etc. In the case of some groups, below their feet a line is drawn.

In two groups of two each, projections, like rays, from the head of one person are shown. About one of these Gordon, D.H. (1955 : p. 94) writes, "In the bottom left-hand corner, one of these women is clutched by the arm by a man who displays an exaggerated phallus" and thus thinks the person with rayed head-dress, to be woman. However, the person with rayed hairdress, of couples, seems to hold a sword pointed downwards while the partner holds an axe with splayed out edge. Here it is noteworthy that all the human figures in front profile are painted like silhouette. Anatomical characteristics of the male or female to distinguish one from the other would not be shown sometimes in this primitive method of painting. Further human beings with this type of hair dress, apparently men, do occur in the paintings of the rock-shelters at Chibbar Nala, Dist. Mandasor (IAR; 1957-58 : pp. 26-28) and on some chalcolithic pottery (IAR, 1957-58 ; p. 23). Thus merely on the basis of the rayed hair dress it is difficult to identify the figure to be a woman. On the other hand with the weapon

like sword the person holds, in one case, that rather unbecoming to a woman in the domain of the painting of the prehistoric period, it is quite likely that the person with the rayed hair dress is a priest engaged in some ritual and the hair-dress might be symbolic of his association in the ritual in progress.

Generally, these figures are more or less of uniform size. Occasionally, the size is enlarged. There is a group of three small persons, probably children.

A single person is depicted at three places. One holds a spear in one hand and an axe in the other. Another person keeps the hands on the waist.

Among these human figures, there are horse-riders, here and there, ten in all. While some are seated, on the horse back others stand on them. They carry weapons such as spears, or axe or a long object with serrated edge in one of their hands and the reins controlling the horse and sometimes also a weapon in the other. One important noteworthy feature here is that *the reins with its one end from the mouth of the horse, instead of going below the neck and then upwards into the hands of the rider, is shown going over the head, invariably, a distinctive mode of depiction.*

II. *Animal Figures*

About 7 bulls and/or cows some with humps, 5 deers including antelopes and stags, two peacocks and a dog, are scattered amidst the human figures.

Rock-Painting No. 4

In this, there is not anything more worthy of detail analysis than what is already noted above.

Rock Painting No. 6

Essentially this is similar to the rock-painting No. 1. But the horse-riders, the bulls and the cows are more numerous. Besides, what appears to be a man seated on horse-back, charging at a tiger that is attacking a flock of deer and the geometrical design mentioned above, occur only in this, thus making the painting rather more interesting and richer in details.

The figures may be grouped as follows :

I. Human beings :		
i) Horse-riders with weapons.	...	13
ii) Human beings in singles.	...	12
iii) „ „ „ groups hand in hand.	...	6
II. Animals :		
i) Deers including antelopes and stags.	...	11
ii) Peacocks.	...	8
iii) Peahen.	...	1
iv) Bulls (a few appears to be cows).	...	34
v) Cows.	...	4
vi) Horses.	...	5

III. *Geometrical Design* :

I. *Human beings* :

i) *Horse-riders.*

The horse rider almost invariably shown as standing on the horse-back, holds in one of his hands, bow and arrow or spear or lance studed with spikes and the reins in the other. In two cases, the horse with its rider, is led with a long rope by another person. Another horse-rider is charging with his spike studded lance a tiger that is attacking one of the antelopes of the flock. While a horse-rider appears to shoot an arrow at another person, another standing on the horse-back, keeps his left hand on the waist.

ii) *Human Beings in Singles*

A standing human being holds a weapon such as axe with splayed out working edge, spear, in one of his hands or these weapons in both the hands. One person holds the reins tied to the mouth of a horse (with its rider standing on the back), and an arrow in the other hand. Similarly, there is another person with an axe having splayed out working edge in the right hand and a stick in vertical position and a rein tied to the mouth of an unidentified animal with elongated body and long neck held vertically straight in the left. In a group of three persons an attempt is crudely made to show three fingers like thick rays projecting from the end of each hand of a person. The three persons are of larger size, one of them being shown with four fingers on the right hand, and spike studded lance held up horizontally, in the left.

iii) *Human Beings in Rows*

There are six rows of persons consisting of 2, 3, 5 and 7, the rows of three being more in number. In one row of three hand-in-hand, one of the extreme figures, is shown with three fingers. The central one is with rayed head-dress. All the persons of the row of seven, hand-in-hand, are with rayed head-dress. The extreme persons of another row of five, keep their hands on their waist. Beneath a row of three, a line is drawn probably to distinguish it from the others.

II. *Animals*

Among the animals the bulls and cows are predominant and concentrated in the north-west corner of the ceiling. Hump is not invariably shown. In some cases if it is a bull or cow is difficult to say owing to the most general delineations. The male organ sometimes with bulbar end and the udder are clearly shown in some of the bulls and the cows respectively. The *depiction of udder in the case of cows,* appears to be peculiar to this group of paintings. There are four cows whose udders also are shown. The pea-hen has an indistinct cocktail. The antelopes are realistic with their many branched horns.

III. *Design*

Described above.

As mentioned above, geometrical designs of rather obscure nature, are found in the western compartment of the rock paintings Nos. 2 and 3. That of the latter with incomplete and indistinct horse-rider, is more akin to the above one.

General Characteristics of the Paintings

1. The paintings are invariably executed in red ochre. However, the red ochre colour is not the same throughout. It appears to have been mixed with something else,

as it is apparent from the dark-red colour of the nude man in the eastern compartment of No. 3.

The colour varies from reddish brown to dark-red or dark pinkish.

2. The human and animal figures are either painted in full or stylized in lines. The latter category are a few and probably unfinished ones.

3. The individual figures either in groups or in singles, are in all sorts of directions. All the kinds of figures are interspersed at random.

4. The difference in the colours and the disorderly positions of the figures seem to suggest the execution of the paintings in different times. In the rock-painting No. 6, the colour of the paintings on the vertical face of the rear boulder is darkish pink resembling the red-ochre paintings of the neolithic pottery, while that of the ceiling is reddish brown and appears rather fresh. It may be argued that since the paintings on the rear boulder is more directly exposed to the inclemencies of the weather than that on the ceiling, this variation in the colour might have resulted. But a close observation of the other paintings in similar situations would not support such surmise. On the other hand the disorderly positions and attitudes of the figures and the variations in colour, would suggest that the paintings, were not planned and executed in one and continuous stretch. They were painted, now and then, and in some part of the natural rock surface, not from one end to the other gradually, till the entire area was filled up. The duration of these periodical activities is not evident from the paintings.

5. Usually the figures are within certain ranges of measurements. Occasionally they, especially the human figures attain large sizes.

6. Groups of dancers in which the persons at the extremeties sometimes holding weapons ; large number of horse riders holding various types of weapons and cattle, are predominant.

7. Persons with rayed head-dress and peacock are found in these paintings only and not in the other paintings.

8. Attempt to depict fingers in the case of human beings is indicating a step towards realistic art from stylization.

Implications and Authorship

Groups of dancers sometimes with weapons ; horse-riders, also with various kinds of weapons, including the one charging an arrow at the tiger which is preying upon an antelope seem to suggest that the paintings commemorate some *hunting ritual* of a horse-riding community who domesticated the cattle. The theme is in keeping with the fauna of the locality. Hire-Benkal area is wooded and hilly, infested with carnivorous animals like tigers, leopards, bears, till recently as the local people and peacocks and deer which can occasionally be seen even today.

Allchin (1955 : p. 99) associates "Large groups of hunters or warriors with horses... carrying metal weapons", with the builders of the megaliths.

That these paintings were probably executed by the megalith builders appear to be correct in the light of the following observations.

1. Besides these nine paintings, there are rock-paintings discovered by me in the nearby localities : Chik-Rampur, Anegondi and Venkatapur (IAR ; 1961-62 and 1965-66 : Explorations in Mysore State). The one in the hills of Chik-Rampur is just on the periphery of a neolithic site with the grey-ware pottery. Megalithic remains occur in this site. Near the rock-painting at Anegondi, no site is noticed. The other one is Venkatapur commands the view of the remnant of an already known ash mound with the neolithic grey-ware pottery and the megalithic black-and-red ware pottery. I actually extracted from the mound a complete black-and-red ware vase with graffiti. As mentioned above, from the rock-shelter with the painting No. 2 at Hire-Benkal I picked up a piece of typical platter of the neolithic grey ware with red ochre painting at the edge. And in the plain fields, is the ash mound (Munn, L ; 1934 a : p. 122) in a neolithic habitation site noticed by me.

In these paintings and in the other rock-paintings Nos. 5 and 7, in Hire-Benkal, cattle, the humped bull is predominantly depicted. The horse is conspicuously absent. So far, the neolithic levels in this region, have not produced indisputable horse remains. From the circumstantial evidences i.e. situations and nature of the paintings and from the excavations in this region it appears that the neolithic people might be the authors of some of these paintings, found at Anegondi, Chik-Rampur, Venkatapura and Hire-Benkal. The Nos. 1,3,4 & 6 of Hire-Benkal *with horse-riders* certainly do not belong to the neolithic period.

2. The situations of the Nos. 1,3,4 and 6 in the midst of megalithic tombs or near them where neolithic remains suggesting regular habitation are absolutely absent, are particularly noteworthy.

3. Among the weapons, axes, spears, sword, sword with serrated edges and the spike-studded lances, the last type (probably never represented in the sculptures or paintings from the early historical period onwards), has been unearthed from one of the megalithic burials at Yeleswaram (Waheed Khan ; 1963: Pl. VIII).

In respect of the horse-riders, two things are noteworthy ; the way of depicting the reins of the horse and overwhelming representations of the horse-riders in standing posture. The reins, as noted above, strangely enough, goes over the head and never below the neck, from the mouth. At least from Asoka's times onwards the reins of the horse could reasonably be expected to have been painted realistically. Hence it appears to me that the rein, is not made of fibrous thread but is possibly a kind of peculiar metallic thin rod. Use of such controlling rod is not without a parallel. Even today tribesmen who dometicate wild bear, use a bamboo stick as controlling rein for it. One end of it is tied with an iron ring to the mouth and the other end is held by the controlling person. If this suggestion is correct, the unusual mode of controlling the horse speaks of high antiquity at least the Pre-Asokan period for the paintings.

So far as this mode of depiction is concerned, there is comparable carving of a horse chariot on the slabs of an Early Bronze Age tomb at Kivik in South Sweden (Bibby, Geoffrey ; 1962 : p. 59). In this carving, the reins from the mouth of the two horses drawing the two spoke-wheeled cart, are held by the person standing in the cart. The reins are shown going above the horses. This representation and the mode of holding the reins by the cartmen, are exactly the same as in the above rock paintings.

7. *Skeletal Remains and Megalith-builders*

Skeletal Remains

As the mode of burials in megaliths is mostly Post-excarnate, secondary and extremely fractional, skeletal remains of important parts of the body are not generally available to obtain information about the racial types and composition of megalith-builders. Out of the many excavated megaliths only a few contained some skeletal remains. In any of the excavated megaliths in Jadigenahalli Skeletal remains from the pit-circles in Brahmagiri, are quite a few. Megalith 2 of class B(v), in Maski, had yielded a few splinters of bones. Secondly, the skeletal remains from many of the megaliths had been so much disturbed that a reliable identification of these, is extremely difficult. Thirdly, reports on the skeletal remains wherever available in considerable number, are still fewer at present. Consequently, there is not sufficient and comprehensive date giving a fairly good picture of the racial types and composition of the megalith builders.

At present, the report on the skeletal remains from the megaliths in Maski is being published by the Anthropological Survey of India. Those from Megalith I and II in Gaudageri-Unachgeri and Gajendragad-Rajur area are being studied. Reports on the skeletal remains from Brahmagiri, Yeleswaram and Adichanallur, are available.

Racial Types

Three racial types (Sen, D.K. ; 1964-65 : p. 186) have been identified in the skeletal remains from Maski :

(i) Meso-brachy-chranic type (Scytho-Iranian ?)

(ii) Type comprising a very long head, thick and heavy bones and longer cranial type, similar to the al 'Ubaid type.'

(iii) Type that appears to be autochthonous Australoid.

Guha and Roy Choudhury, D. (1964) observed that the skull or the drawing thereof from Jewargi (Bk), published by Taylor, showed negroid characteristics. Sarkar however thought that the skulls had undergone certain amount of deformation and no racial type could definitely be established.

In the skeletal remains from Brahmagiri megaliths two racial types are recognised. The four skulls from Megalith I agree with one another in a large number of morphological details and point out family relationship and represent a strong physical type. They do not agree with either the autochthonous Australoid type of this country or the Indo-Aryans and appear to be of foreign origin. The people of this racial type were more or less medium statured, mesocephalic, medium vaulted, flat nosed type with robust constitution and powerful upper and lower jaws probably of the Scytho-Iranian stock.

They are close congeners of the 77-79 index of people in Central and Western India.

The other racial type represented by the skulls D and E is the autochthonous Australoid element.

Brachycephals having affinity with that of Scytho-Iranian stock, are recognised in the three male skulls from the megaliths in Yeleswaram.

The skulls of Adichanallur are of two racial types : the Mediterranean and the proto-Australoid as the Veddid types (Sen, D. K. ; 1964-65 : p. 185).

In Sanur, two skulls from Megalith 2 (Banerjee and Sundara Rajan ; 1959 : p. 41) are dolichocranial. One of the urns from Perumal Malai (Anglade : pp. 42-43) contained a skull that was dolichocephalic.

Thus at present, the three chief racial types known from the megalithic levels of the Deccan and South India, are :

1. Autochthonous Australoid type and, Proto-Australoid as Veddid types.
2. Type similar to the al 'Ubaid type'.
3. Meso-brachy-cranial types of probably Scytho-Iranian stock, which do not agree with either the autochthonous Australoid type or Indo-Aryans.

While the first two types are found in slightly varied forms in the Deccan and South India, the third type is reported from the Lower Deccan only.

In the neolithic period the population was a Mediterranean Proto-Australoid complex possessing predominantly a dolichocranic head, in the Deccan (Nagaraja Rao, and Malhotra, K.C. ; 1965a : pp. 156-157) as known from the studies of skeletal remains from Tekkalokota, Brahmagiri, Piklihal, Nevasa.

Megalith Builders

From the present meagre evidences from the two cultural levels : the Neolithic and the Megalithic, it appears provisionally that while the people of Australoid and Mediterranean which has also been designated as 'Dravidoid' racial types were wide spread in the Deccan and South India at least from the neolithic times onwards, there was perhaps an intrusion of an alien people represented by *brachycephals having affinity with the South-Iranian stock known only from the megaliths, who probably introduced the practice of erecting tombs of huge rough stones, in the Lower Deccan.*[1]

8. Origin and Diffusion of the Megalithism

Now we have come to an important and difficult question concerning the authorship of the megaliths and about the original place of the builders. The apparent indications from the study of the skeletal remains in these respects are discussed, above. Now, the archaeological evidences are considered below.

Many scholars such as Walter Ruben (1939 ; pp. 154-158) ; Srinivasan (1944 : p. 97), Aiyappan (1946), Krishnaswamy (1949 : pp. 42-43), Haimendorf (1943 : pp. 149. 189. 1945, 73-86. 1953 : pp. 127-135) Heine-Geldern : 1959 ; p. 179. Also see Banerjee: 1965 : pp. (vii-viii) ; Wheeler (1948 : pp. 200-202), Gordon Childe AI, No. 4 : 1948 : pp. 5-12), Gordon D.H. (1960 : p. 181), Banerjee (1962 : pp. 180-189, 1965: pp. 43-49), and Subba Rao (1962: pp. 132-151) Ghurye, G.S. (1963 : pp. 80-94),

1. This observation of mine was recorded in my Ph.D. Thesis, *Megaliths in North Karnataka* submitted to the Poona University in 1969. Subsequently, similar view was published by Roy Chowdhury (Gupta, S.P. ; 1972 : p. 305).

Cornelius, J.T. (1966 : pp. 287-301). Dikshit, K.N. (1968) have earnestly attempted to solve the problems pertaining to the origin and diffusion of the megalithic cultural components such as the black-and-red ware, iron and mode of burial i.e. secondary and fractional burial in rude stone chambers.

These theories may broadly be classified into four schools of thought covering comprehensively almost every approach to the problem. They are :

1. The diffusion of the megalithic architectural traditions from the Mediterranean region by sea or along the coast viz. : South Arabia, Persian Gulf, into South India from the Western Ghat region. (Gordon, C. and Gordon, D.H., Haimendorf).

2. The diffusion of the megalithic burial tradition from the region of Iran, or of Baluchistan by land (Hein-Geldern, Banerjee and Subba Rao).

Intrusion of iron and the black-and-red ware from North into the megalithic cultural Complex in the Deccan and South India (Gordon, D.H., Banerjee, Subba Rao and Wheeler).

3. Recognition of the close similarities particularly in the megalithic architecture and occasionally in the pottery between South India and the West, but pleading for a thorough work in the intermediary region ; to investigate if the South Indian megaliths were due to some influence or community movement mainly from the West or to an independent parallel development in India (Wheeler and Lal, B.B. 1963 : pp. 579-581).

4. The diffusion of Megalithism from the region of Palestine via Persia in the early Iron Age (Ruben and Ramachandran, K.S. ; 1969 : pp. 59-65) that split in North India into two branches : one moving as far east as Chhota-Nagpur and another to South India (Ruben and Hein-Geldern).

Besides, some scholars such as Haimendorf, Banerjee and Subba Rao, had opined that megalith-builders were Dravidians. Now it is proposed to examine below the above theories in the light of the study of the megaliths of North Karnataka.

i. *Megalithic architecture* : its diffusion from Iran or Eastern Mediterranean region to South India.

In North Karnataka, besides port-holed chamber tombs, there are passage chambers of different types which especially of the Greek or Latin Cross type, have close resemblances to those of Western Europe, particularly France, Portugal, and British Isles. In fact, the similarities between the passage chambers are in greater degree than in the port-holed chambers of the two regions.

Of course, the western extent of the area of the passage chamber that must be outside the western part of North Karnataka as evidenced by the passage chamber tombs in Harali and Ainapur, Dist. Kolhapur, is yet to be defined. Its eastern periphery is marked in the Dists. of Gulbarga and Raichur. At present, the area appears to be land-locked pocket : the passage chamber tombs remain apparently isolated. The area is less than 60-80 km. in distance from the coastal plains as the crow flies.

No passage chambers have been reported hitherto in either the regions comprising the granite-gneiss and the sedimentary rocks such as flaggy, limestones etc., of the Vindhyan, of North Andhra Pradesh, Central and North India, in spite of the discoveries of several megalithic sites with cist-circles, pit-circles and rarely port-holed chambers and menhirs in North Andhra Pradesh and of some sites in North India. Also, this type is not reported from any other part of South India.

Some cairns of Baluchistan area are reported to have a passage. But the structural details of the cairns (Gupta, S.P. ; 1964 : pp. 204-205) as known briefly, are entirely different from the passage chamber tombs of North Karnataka. There are two types : Simple cairns without arrangement of the stone rubbles immediately overlying the burial-pits and cairns circular or rectangular on plan, with flat top, composed of stone rubbles put one over the other. Cairns of either types do not invariably contain stone chamber.

Moreover, these cairns contain either post-cremation or post-excarnate fractional burials as for instance at Sur Jangal and Moghul Ghundai respectively.

Further, it seems there are no passage chamber tomb in the Iranian region since only port-holed dolmens are reported so far from there.

It is discussed above that the differences between the port-holed megaliths of Sialk VI B region and of South India, are many more than the similarities. It is only the port-hole that is common between the two. One tomb in Dambakoh (Banerjee ; 1965 : p. 43) is a square chamber with an opening or port-hole in one side. "Frequently one of the side walls shows a small opening similarly roofed over and intended to represent an entrance" (Stein Aurel ; 1937 : p. 74). It appears that structurally the opening differs from that of South India.

Port-holed chambers of both Rajankolur and Hire-Benkal types are concentrated in large numbers in Pulney area. Wynad area and also in the coastal plains such as Porkalam, Kajekaru, etc.

On the other hand, in North Andhra Pradesh, sites with port-holed chamber tombs are comparatively few and far between. The port-holed chambers are of advanced type and of either clockwise or contra-clockwise plan and thus are of Hire-Benkal type only. Oblong cist-circles is the predominant type here. Further north, in the Central and North India, the port-holed chamber is not reported to have been found hitherto.

The date of the beginning of the cairn burials of Baluchistan area, is disputed. Benerjee on the basis of the affinity of the painted pottery from the burials with the Londo ware which in turn shows some analogy with that of Sialk VI B dated by Schaeffer (1948) to 1200-1000 B.C., assigned circa 800 B.C. for it : Gordon, D.H. (1960 : p. 160), to 650 to 450 B.C. and Subrahmanyam (1966 : pp. 69-78), to circa 300 B.C.

In the lower Deccan the overlap of the late neolithic in the chalcolithic stage and the megalithic culture, the C-14 datings for the end phase of the neolithic culture (in the chalcolithic stage), in Hallur, Tekkalakota, of the chalcolithic culture at Sonegaon and Chandoli and for the overlap phase at Hallur suggest convincingly

a fairly early date i.e. 900-800 B.C. for the beginning of the Iron Age Megalithic culture in the lower Deccan. In fact, the beginning of the Iron Age passage chambers, it will be shown below, is still at an earlier date. Even admitting Banerjee's date for the cairn burials, it is evident that the chief types of the South Indian megaliths : the port-holed chamber and the passage chamber tombs are earlier in date than the cairn burials.

Neither the chronology nor the characteristics of the megaliths of the Aravallis, are clearly known. Where and how do they stand relatively with the South Indian Megaliths, is not established ? They can not be considered at present in connection with the above problem, unless and until they are well examined. As discussed above, the megaliths of Junapani area are of different complex. They can not be taken as representing a stage of development, since C-14 dating for the similar site at Takalghat suggests, at the most 700-600 B.C. for the beginning of the culture represented by the megaliths of Junapani, Kapa. It is noteworthy that about 550 km. west of Junapani as the crow flies, there is Ranjala with typical megalithic pit burial in the Tapi Valley which in turn is only about 200 km. from the Arabian Sea.

It should be recalled here that the port-holed chambers are comparatively few in the upper Deccan and structurally of a late phase, while in the Western Ghat and West Coast region of the Southern Karnataka and of North Kerala, they are in large numbers and typically megalithic suggesting an early phase of development. Thus the trend of the evidences suggests an eastward, north-eastward diffusion from the Western Coast and Ghat region to Andhra Pradesh and Tamil Nadu.

Thus, from the architecture of the megaliths, the types of the passage chamber tombs and port-holed chambers, their distribution patterns and the chronology there are no indications that the cairn burials of Baluch-Makran area or of even Sialk VI B and other sites of Iran were the source of the South India Megaliths and that the megalithism of the South Indian Complex percolated from the North to the South. On the other hand, the heavy concentration of the megaliths along or near the Western Ghat from Pulney region as far north as Ranjala and in the plains of the West Coast; the eastward and north-eastward direction of the diffusion, and their absence further north of the lower Godavari, suggest the intrusion of the megalithism from the coastal region at various points into the hinterland.

The North Indian Megaliths as pointed out differ in architectural forms and types, in the modes of the burials and in the characteristics of the burial furniture so much from the South Indian, that they seem to represent a separate branch of megalithism perhaps percolating from the region of Iran and Baluchistan. Thus the theories of the diffusions of two more strains of megalithism, of Ruben and Hein Geldern appear to the correct partly. But North India is not probably the region where the megalithism branch into ultimately two separate and distinct traditions respectively in the Eastern and South India. The South Indian megalithism in view of the close resemblances of particularly the passage chambers with those of the Mediterranean and Western Europe, appears to have diffused from the Eastern Mediterranean region and along the Coast and into the hinterland of South India.

ii. *Iron*

So far as iron is concerned, again, the occurrence of iron from about 900 B.C. onwards at Hallur and relatively in the sites of the passage chambers in the Krishna-Tungabhadra area of North Karnataka at the same or slightly earlier date, the possible local iron-smelting activity as the ash mounds seem to indicate according to recent investigations and the rich and easily procurable sources of iron in the West Coast region and in the interiors, suggest an independent iron producing economy of South Indian Megalithic Culture. In fact, the simple and few forms and the small numbers of iron objects from the megaliths of early phase in North Karnataka discussed above; might indicate the early stage of iron metallurgy and not a developed stage coming from the North.

iii. *The Black-and-Red Ware*

Regarding the black-and-red ware, no doubt, the chalcolithic black-and-red ware percolated along with the other chalcolithic cultural elements into the Deccan and further South to the Kaveri valley perhaps slightly earlier when the introduction of megalithism. The megalithic culture that soon followed comprised of its own already well developed black-and-red ware which was different in fabric and types from that of the chalcolithic. There is hardly any transitional stage between the two. In fact both continue together in the Tungabhadra valley. The early date for the megalithic black-and-red ware, the differences in types and fabrics between the black-and-red ware of the megalithic and non-megalithic and of the non-discovery, if not absence of the non-megalithic Iron Age black-and-red ware cultural burials and the absence of a phase of megalithic pottery in the upper Deccan and Central India, would not warrant the derivation of the megalithic black-and-red from the Iron Age black-and-red ware of the northern regions and periods. But it was adopted by various communities in their own ways and according to their requirements. Where, when and from whom was the technique barrowed or evolved by a community is very difficult to pin-point and perhaps possible to ascertain only from thorough combing explorations and problem oriented excavations in the promising regions.

Thus, neither megalithic architecture, nor iron nor the black-and-red ware of the megalithic culture, seems to have come from the North by land.

iv. *People*

There is yet another aspect of the problem of the possible diffusion of megalithism from the North by identifying the megalith-builders as Dravidians who according to literary evidences were in the North before they were pushed southwards by the incoming Aryans. On their southwards way by land the Dravidians picked up the megalithic tradition from the cairn builders of Baluch-Makran area, iron from either the cairn-builders or the Aryans using the painted Grey ware pottery, black-and-red ware pottery from the chalcolithic people and developed megalithic culture in the South between 700-300 B.C., according to Banerjee (1961 : pp. 26-28 and 1962: pp. 180-189). Subba Rao considering the problem from the linguistic, Anthropological and Archaeological factors, is more or less of the same opinion. But he thought that the Dravidians moved from Rajasthan area across the Central to the South India.

Further, that the neolithic people of the South were not probably Dravidians,

was put forward by Subba Rao and Banerjee as follows :

With regard to this problem, Foote was rightly comprehensive in posing two questions whether the neolithic people of South India were Dravidians or pre-Dravidians. Subba Rao (1962 : pp. 132-133) in reply to the first alternative asked, "If the early agricultural Neolithic and Chalcolithic communities represent Dravidians what would be the element represented by such vigorous Iron Age people ?" Further, he said that the megalithic culture had a greater claim to be ascribed to the Dravidians on account of the continuity of the traditions and references in literature etc. He seems to suggest thus that the Neolithic communities were pre-Dravidians.

Banerjee (1962 : pp. 180-181) also expressed independently an opinion similar to that of Subba Rao. Further, he raised a question as to what happened to the language spoken by the earlier primitive neolithic folks of South India if the megalith-builders were the Dravidian speaking people according to Haimendorf. "If at all any different language was spoken by them, if could not but offer some loan words to the invading language". In this regard Prof. F.B. Kuiper of the Leyden University informed Banerjee that this was a difficult problem. In the Northern Dravidian languages there was without doubt certain amount of foreign words. If there was an old layer of foreign words, that could no longer (or, not yet) be singled out. But it would seem hardly questionable that such a layer did exist." Banerjee, further argued that the Dravidians who introduced megalithism were not autochthonous in South India as the development of the megalithic cult and iron, did not indicate the rudimentary stages. Secondly if the neolithic people of the South were Dravidians, the powerful intrusion of megalithic culture mean a fresh impetus to the South. As history would indicate that such movement could have been of the Aryan tribes and influences only, during that period. But with the Aryan tribe or influence the megalithic cult which had no place in their religion could not be associated. The people intruding into the neolithic communities of the South, were therefore, Dravidians. Moreover, the linguistic contacts of the Dravidians and the Aryans did not take place in the South. Thus he concluded that the Dravidians with the megalithic cult entered South India indirectly suggesting that the neolithic people were not the Dravidian speakers.

The above theories thus suggest the arrival of the Dravidians and megalithism together and the neolithic people were not Dravidians. But I think that the problem can be better examined, by separating the two issues : (1) the Dravidians, and (2) the megalithism and by considering the latter as being introduced in the South into a Dravidian speaking community who arrived and settled there long ago. Whether there are any indications to consider the problem from this angle is now discussed.

Now, the period of the Vedic and other allied literatures giving clues about the contact of the Dravidian and Aryan speaking peoples, the regions of the contact, North-Western India or Iran, is most assiduously disputed leading to several diverse theories. There is no finality as to when and where these two peoples came in contact with eaeh other, and about their original homes.

The presence of Dravidians speaking people in the Central Asian regions, had been suggested by many scholars. Prof. F. Otto Schrader (Ramaswamy, L.V.; 1929 :

pp. 49-53) had traced a large number of ancient place names in Afghanistan, the highlands of Persia, the plains of Euphratese-Tigris and Mesopotamia (pp. 50-51) to Dravidians forms to investigate whether the Dravidian-speaking people were in Central Asia in a prehistoric period. Another German Scholar, Herr Schoener, (pp. 52-53) argued on linguistic grounds that the Dravidians originated in South-West Central Asia and spread eastwards and westwards by the name Ar. mal-ur denoting river, mountain and country. These Dravidians are said to be ethnically of Mediterranean Complex (Heras Father ; 1953 : pp. 159).

Sircar, D.C. (1955 : pp. 31-38) with some examples suggested the fusion of the Dravidians and Aryans in Iran (possibly East Iran).

These Dravidians probably extended further eastwards into the Indus Valley Region of the North-Western India from Afghanistan region. The contact of the Dravidians and the Aryans in the Indo-Iranian region, the diffusion of the Dravidians and later on, of the Aryans from the Iranian region towards India and further South must be quite early, probably not later than circa 1500 B.C., since the Rigveda containing Dravidian words was probably composed not later than 1200-1000 B C. (B. Ghosh, B.K. ; 1952 : p. 203 and 1958 : pp. 136-137) and by about 500 B.C. the whole of North India, was already completely Aryanised giving rise to Buddhism and Jainism.

Now with regard to the evidences from South India, Sircar (1955 : p. 31) had pointed out that the Dravidians had arrived many centuries before 300 B.C., in view of the fact that the Asokan inscriptions in South India at Brahmagiri, Maski, Barragudi etc. were in Prakrit language. Asoka, who was most liberal in his outlook for the benefit of his subjects and got the inscriptions in the North-West Frontier of his kingdom in Greek and Arabic languages, certainly would see that the inscriptions in the South were also in the tongue that was popular among the people of that part. Further, his Edict II refers to the kingdoms of Cholas, Pandyas, Tambraparni, Keralaputra and Satiyaputra. It is evident [from these inscriptions that the lower Deccan by 500-300 B.C. was already so much Aryanised that Prakrit Language could be understood by a common man there. Thus, the Aryanisation of the lower Deccan by about 500-300 B.C. and the building up of the kingdoms in the extreme South, obviously presupposed the arrival of the Dravidians to the South several hundreds years before. Sircar (p. 35), further pointed out that Baudhayana Dharma Sutra of circa 500 B.C., indicated the contacts between the Aryans and the Dravidians in the South. The diffusion of the Dravidians to the South followed later on by that of the Aryans and the Aryanisation before 500 B.C. in the South, must have taken quite a long a time.

The study of the skeletal remains from the neolithic levels at Brahmagiri, Piklihal, Tekkalakota, Nevasa etc. (Nagaraja Rao ; 1965a, pp. 156-158) has shown that people were of chiefly two racial types : the Mediterranean and an Autochthonous Proto-Australoid in mixed form and the former was predominant type. Recent explorations in the Krishna, Tungabhadra and the Kaveri valleys, had brought to light hundreds of neolithic sites evidently suggesting this vast region of South India was thickly populated. If the racial types known from a few sites are representative of the region, then, it may be said that by about 2000 B.C. in South India there was

thick population consisting chiefly of two racial types : the Mediterranean and the Autochthonous Proto-Australoid.

From the skeletal remains of some of the megalithic burials at Brahmagiri, Maski (Sen, D.K. ; 1964-65 : p. 185) Yeleswaram, Raigir and Hyderabad region (Hunt ; 1924 : pp. 148-149, 1916 : pp. 201-206) Savanadurga (Branfill ; 1881 : pp.1-12), Pulney, Sanur and Adichanallur (Sen, D.K. ; p. 185), besides the above two racial elements, another type probably of foreign origin having affinity with the Scytho-Iranian stock, have been identified. Guha (1944) in his analysis of the present day population of South India, recognised Palaeo-Mediterranean, also called Dravidoid, and Proto-Dinaric strain, in spite of the fact that large scales of admixture of racial types over a long period, had taken place and there is hardly any pure race, then. The preliminary racial study of the Boyas in Tekkalakota (Nagaraja Rao ; 1965a : p. 159) has revealed that the Boyas have a number of morphometric characters with the human osseous remains of the neolithic site there.

From these evidences it is observed therefore that a Mediterranean Proto-Australoid Complex is existing since more than 5000 years, in the South, and these Dravidoid stock distributed in the Iranian plateau and even Central Asia in pre-Bronze Age Times (Allchin ; 1960 : pp. 141) spread eastwards, according to anthropologists, into India and to the South (Nagaraja Rao ; 1965 a : p. 157). This racial type has been recognised in considerable number, in Mohenjodaro series 2, 11, and M and, 6, 7, 9, 10, 19 and 26 ; Cemetery R-37 and Cemetery-H stratum-I of Harappa.

So far as the archaeological evidences are concerned, they suggest the appearance of a sudden full-fledged neolithic economy in the South and that the neolothic culture is not entirely locally evolved and developed. The neolithic culture appears to be a product of the external stimulus and the influenced local Late Stone Age people probably represented by the Dravidoid and the autochthonous Proto-Australoid, respectively. In fact, in the recent explorations of the Krishna-Tungabhadra valleys by me, it was clearly evident that the neolithic culture had diffused along the Krishna valley, eastwards, from about 2200 B.C.

It is noteworthy here that the neolithic sites of the Southern Complex, more or less, cover the areas of the present Dravidian speaking peoples.

Thus, linguistically, anthropologically and archaeologically, it is most probable that the neolithic people of South India were Dravidian speaking people who came from the North by land and probably by the West Coast as well as evidenced by the neolithic site in Nilaskal in the Western Ghat region.

The next problem is as to who, then did introduce megalithism in the South. To this question there appears to be an answer in the racial type of probably foreign origin, having affinity with the Scytho-Iranian stock reported only from the megalithic burials of Brahmagiri, Maski, Yeleswaram, Raigir etc. Since this racial type is not found in Adichanallur and Sanur, it is likely, therefore that a group of people predominantly of more or less medium statured, mesocephalic, medium vaulted, flat nosed type with robust constitutions and powerful upper and lower jaws probably of

Scytho-Iranian stocks, with megalithic concept, following the canstal route as discussed above, entered the Deccan and South India through the Western Ghats, mixed with the Dravidian speaking people in the neolithic stage, among whom the megalithism became popular in due course, as suggested by the megalithic burials of class B(i) to B(v) in Maski and by the round barrows of Dharwar region and by the skeletal remains from the megaliths.

Whether these megalith-builders had already possessed the knowledge of the technique of the black-and-red ware pottery and iron metallurgy and where and when did they acquire them, may be known from further work particularly in the West-Coast and Western Ghat region and other promising regions, should decide. It should not be difficult and time-consuming for those who were acquainted with iron metallurgy to locate iron ore deposits which are easily tectable and very rich in the West Coast region. Incidentally, recent researches in South Africa (Dart, R.A. ; 1969 : pp. 126-127) had conclusively proved that iron ores were mined for pigments etc. ; from the prehistoric times at least from the late Stone Age, over a period of 28,000 years according to C-14 datings and the foreign cres and pigments found in prehistoric deposits were due to deliberate mining. What is noteworthy from this observation is that some sections of the prehistoric communities were already familiar with the iron-ore mining before the use of iron ore for metal producing purpose, was realised.

Regarding the source of megalithism, very close similarities of the passage chamber tombs of North Karnataka with those of the Western Europe ; port-holed chamber tombs and the rock-cut tombs of the Western Ghat region with those in the North African region, in Palestine, Jordan valley, in the Persian Gulf and in Karachi areas ; the occurrences of head-rest in the neolithic levels in the Kaveri valley and in Egypt, the discovery of burials with rubble packing and the black-and-red at Tuma in Nubia closely analogous to those of Brahmagiri, and the linguistic similarities of certain words of South India and of the Mediterranean region alluded to by Cornelius and considerably small chronological gap between the megaliths of the two regions, may suggest that the East-Mediterranean region might possibly be the source of South Indian megalithism. However, unless the intermediary region is studied, whether the South Indian megaliths are indeed in any way related to and inspired by those of the Western region or locally evolved cannot be definitely established.

Summary

By way of enumerating the provisional inferences from the above critical analysis of the evidences, it is found that—

i) The passage chamber builders seemed to have preferred mostly the river valley areas in the hilly terrains.

ii) The passage chamber tomb types are comparatively the regional types of North Karnataka and closely analogous to those of British Isles and of other West European countries.

iii) That there were two distinct traditions governing the passage chamber and the port-holed chamber types giving rise to : the Konnur and Kaladgi types, the Aihole and Rajankolur types, the Brahmagiri and Hire-Benkal types. Further the first

two types gradually and correspondingly were developed into the last two sets of the types.

iv) Owing to the impact of the passage chamber builders, the local people in the neolithic-chalcolithic stage gradually developed indigenous megalithic types such as round barrows, cairn stone circles cist-burials etc.

v) While the menhirs of the Nilaskal type belong to South Indian Megalithic Complex it is doubtful if the stone alignments of the Vibhutihalli types are really of the megalithic cultural complex.

vi) The red ware pottery is predominant in the passage chamber tomb culture.

vii) The tradition of marking the pottery with post-firing scratches viz. graffiti was not a characteristic feature of the megalithic culture of the passage chamber builders, but was adapted in course of time from the chalcolithic people.

viii) The knowledge of iron and its primitive technology, do not seem to have diffused from the North into the lower Deccan and South India. Probably they were indigenously developed more or less at the same time when the Iron Age began in the North.

ix) The neolithic society of the lower Deccan and South India included Dravidians and the Proto-Australoid people. Into this racial complex there was an intrusion of the Megalith builders represented by the passage chambers. They were racially comparable to the people of Scytho-Iranian stock and probably coming from the Mediterranean region along the Coast and diffusing into the interiors therefrom. They heralded megalithism in Karnataka in particular and in South India.

x) The megalithic culture of North India is essentially different from that of the South and probably was derived from that of the regions of Iran and Baluchistan, at a slightly later time than in the South.

xi) Thus there were two separate megalithic cultural strains hailing at varying periods from different regions ; following separate courses and developing into two distinct major traditions one in the North and one in the South from different periods.

10

CHRONOLOGY

References to the various theories regarding the chronology etc., of the megaliths by earlier scholars are given in the introductory part of the first chapter. The scholars in the light of the literary references such as the *Rigveda, Shatapatha Brahmana, the Sangam* ; of the local traditions ; of the parallels in the other countries ; of certain archaeological remains in some sites etc., arrived at diverse provisional conclusions. Accordingly, the beginning of the megalithism in general or in certain areas, was placed, at different dates : Circa 2500-1000 B.C. (Krishna ; 1942 ; p. 102. Srinivasan K.R. ; 1944 : p. 97), 1200-1000 B.C. (Panchamukhi ; 1946 : pp. 10-28. Mitra ; 1921 : P. CCXLVII) ; 3rd-2nd c.B.C. (Beck Horace ; 1930 : Vol. XXX No. 139) ; 3rd c.B.C. to 4th c.A.D. (Codrington K. De B. ; 1930 ; No. 139) ; 1st-4th c.A.D. (Elliot, W. ; 1886 : pp. 134-135) ; 8th c.A.D. (Cammiade, L.A. ; 1930: No. 136) ; 1st and 6th-13th c.A.D. (Aiyappan, A. ; 1940-41 : pp. 373-379. Maurice Phillips, Rev. 1873 : p. 223-228) etc.

But as is well known local traditions are not always correctly founded. The literary evidences are vague and can render themselves into different and conflicting interpretations. The archaeological evidences unscientifically collected and discussed, are not independently indicative of any probable date and are isolated from the circumstances of their occurrences to ascertain their relative chronological range.

Since Wheeler's dating (1948 : pp. 200-202) of the megaliths in Brahmagiri to about 2nd c.B.C.-ist. c.A.D., chronology of the megaliths of South India has been reviewed and revised by many archaeologists and scholars (Haimendorf, 1953 : pp. 17-20. Seshadri ; 1956 : pp. 70-72. Thapar ; 1957 : pp. 17-20. Banerjee ; 1956 : pp. 32-34 ; 1961 : pp. 26-28 ; 1962 : pp. 180-189 and 1965 : pp. 55-56 and Subba Rao ; 1962 : pp. 132-151. Ramachandran, K.S. ; 1969-70 : pp. 107-109), as and when some new excavations of megaliths were carried out or some new discoveries that seemed to have bearing on the cultural elements of the megaliths, such as iron and the black-and-red ware, were made. Almost all these theories concerning the chronology have already been incidentally referred to above and discussed in the last chapter as they are involving in the considerations of the other aspects of culture such as introduction of iron, of the black-and-red ware and of the megalithism etc.

Recently, Guru Raja Rao (1972 : pp. 310-326) has critically and methodically examined all the various theories put forward by different scholars till then and the available traditional, literary and archaeological evidences regarding the dating of the megaliths. The general consensus of the recent opinions of the various scholars is that the beginning of the culture may, in all probability, be placed in about 8th or 7th c.B.C. though slightly an earlier date is not totally ruled out.

It is against this background let me reassess the knotty problem of the chronology of the megaliths of North Karnataka in particular in the light of the evidences discussed in the preceding chapters. It may be noted that the evidences of the passage chambers, before my study, were little known and hence were not available to the other scholars.

The materials of chronological significance pertaining to the megaliths of North Karnataka may be arranged thus :

1. The distribution pattern of the different types of megaliths.
2. The development of the megalithic types.
3. The cultural overlap and the C-14 datings.

1. The Distribution Patterns

It is already noted above that the chief types of the megaliths are found to have heavily concentrated in certain areas as briefly summed up below :

I Types : Areas of Concentration (Fig 1)

A. Passage chambers of the Konnur type (including those of the Terdal groups) in the Ghataprabha valley, from Harali (Bk)-Ainapur area to Terdal Halingali in the west-east way.

B. Passage chamber of the Kaladgi type in the Tungabhadra valley in Hallur-Rajawala area in the southwest-northeast way.

C. Port-holed chamber of the Aihole and Rajankolur types in Aihole-Rajankolur area in the west-east direction.

D. Port-holed chambers of the Brahmagiri and Hire-Benkal types in Hire-Benkal-Brahmagiri area in the northwest-southeast direction.

E. Cist-circles & pit-circles occasionally with symbolic passage in the cairn packing in the Chikanhalli-Jewargi area in southwest-northeast direction.

F. Pit-circles and pit-burials in the Raichur Doab.

G. Unchambered round barrows in the upper Tungabhadra valley from Nagvand-Hallur to Neelgund area in the southwest-northeast direction. In many of the localities such as Nagvand, Kamalapur. Budapanhalli, Neelgund round barrows alone are found.

II Types : Areas of the Overlap and Mutual Influence (Fig. 1)

A. Saundatti-Guledgudda-Aihole area in the Malaprabha valley having unchambered round barrows in considerable number, passage chambers of Konnur type and aberrant types exhibiting the characteristics of the two types of passage chambers.

B. Passage chambers of Kaladgi type in the Ghataprabha valley at Kaladgi in the northeastern fringe of the A area. Enclosing the chamber in a rectangle sometimes with a semi-circular enclosure on the exterior side of the rectangle indicates the influence of the Konnur type on it.

C. Pattadakal-Aihole area (C'1) having passage chambers of Konnur type and port-holed chambers of the Aihole and Rajankolur types are existing side by side. The former becomes thin in number in the Hagaratgi-Rajankolur area (C'2).

The sub-type (found in Rajawala) of the Kaladgi type also very thinly occurs in Kyaddigeri part of the Aihole group. The influence of the Kaladgi type is evident in the occurrence of the gap in the enclosing circle and in the cutting up the top corners of the passage terminating in the gap in the port-holed chambers of the Aihole type in C'2 area including the sites at Talikot, Salvadgi, etc. of the Talikot group.

D. The pit-and cist-circles of the Chikanhalli-Mandewal-Jewargi area having a few characteristics of the passage chambers of the two types. While the south oriented distinct passage partially buried in the cairn packing and the cairn circle within the enclosing rectangle (as at Mandewal) indicate the influence of the Konnur type on them, erecting a cist sometimes divided into sub-compartments by inserting transverse slabs within the chamber is obviously due to that of the Kaladgi type.

E. Likewise in the Lingsugur-Tawargeri area the pit-circles (i.e. cairn stone circles) exhibit the influence of the Konnur type in the south oriented passage of the circle and the enclosing rectangle they have.

III Types : Geographical Continguity

From the above analysis of the distribution pattern and the matural impact on one another and from a look at the map (Fig. 1) it is clear that A area having passage chambers of Konnur type, is in the western part of the region under study. Further south eastwards of this area is the C'1 area with passage chambers of Konnur type eastwards of the latter is the C'2 area with port-holed chambers of the two types and occasionally the passage chambers of the Konnur type. Close to the east and northeast of Hagaratgi-Rajankolur area is the D'area with cist-and pit-circles having passage in the cairn packing and rectangles enclosing the cairn stone circles. Again to the south of C'2 nearby is the E' area with stone circles having passage and enclosing rectangle.

It is noteworthy that the spatial distances between the areas are small and the areas are almost contiguous to one another. It is, therefore, clearly obvious that the A area is the focus of the passage chamber of the Konnur type and from its focal area in the course of its eastwards diffusion it overlaps with port-holed chambers of the two types in C'1 area, becomes thin in number in the C'2 area and is not found in the D' and E' areas. Secondly though the type if scarcely found is not absent in the areas D' and E' its impact on the cist-and pit-circles there, is distinct. East of E' area and east and southeast of E' area, i.e. in the lower Krishna valley in Andhra Pradesh such as at Nagarjunakonda, Raigir, Dronakal, Hyderabad etc. and the Raichur Doab,

though cairn stone circles of pit-and cist-circle types are found in large number, they do not have passage element in the cairn packing.

Let us now examine the areas of the other types in relation to the focal area of the Konnur type. South of the latter is the A' area, the area of overlap of at least three types : the Konnur type, the aberrant type and the round barrow type. Further south and southeast of the A' area is the B'area with the Kaladgi type, round barrows and cairn stone-circles.

In Rajawala proper, only the sub-type of Kaladgi type exists. Northeast of Saundatti and in the eastern fringe of the focal areas of the Konnur type, is Kaladgi, where the Kaladgi type has the distinct impact of the Konnur type.

The Kaladgi type, though absent east of Aihole, seems to have made its impact feeble on the port-holed chamber of the Aihole type.

Thus as known so far, the Kaladgi type have very sparse distribution over a large area without any clear-cut focal area. Its course of diffusion is therefore very difficult to trace, at present.

The feeble extension of the Kaladgi type in Aihole group is evident from the occurance of only one specimen in Kyaddigeri part of the group.

The port-holed chambers and the cist-and pit-circles of C' 1 and E'areas respectively, have clear impact of the passage chambers of the two types.

The Port-holed chambers of Aihole and Rajankolur types are found only in Aihole-Rajankolur area.

The chamber tombs of Hire-Benkal and Brahmagiri types are found only in south-eastern part (D) of the region under study and extend further southwards in Brahmagiri-Mallapura area and parts of Kolar and probably Anantpur, Chittur Districts etc., on the one hand and Mysore, Coorg, Wynad, Pulney areas on the other. Thus their area can be partially defined in the region. D is to the south-southeast of C, southeast of A and east of B' areas.

If these areas arc connected by straight lines, then area C is in between the areas A and D ; area E', in between the areas C and D. Area B extending upto Aihole lies between areas A and D. Thus the area C is found to be in the centre of the areas.

Further, of the chamber tomb types, the Konnur type is found comparatively in very large number over an extensive area and has quite few cairn stone circles in some sites of its focal area. But it does not exhibit any influence of the other types on it. These factors are particularly noteworthy when the other types of chambers show varying dcgree of mutual influences and each of their areas has usually more than one type. The Kaladgi type in two out of the three sites are without the other types, but clearly has the influence of the Konnur type. Secondly, it consists of at least three sub-types.

Existence of more than one distinct type in some sites, need not necessarily and always indicate contemporaneity of the types there, for the same site having already a particular type of tombs may be reused later by a people having a different tradition

of building their tombs. But the impact of the one on the other types definitely does indicate their contemporaneity at some stage.

Now while all these types are contemporary to one or the other at some stages, it is necessary to examine if these types have independent origins either here or elsewhere or indicate developmental stages. Let us now examine this aspect.

2. *The Development of the Megalithic Types*

The Chamber Tombs Types

In Chapter VIII it has been elaborately discussed and pointed out that among the passage chambers there are two distinct types namely the Konnur and the Kaladgi types. Similarly, the port-holed chambers resolve into four clear types : the Aihole and the Rajankolur, the Brahmagiri and the Hire-Benkal types. Also, the substantial architectural differences between the two types of each set, are enumerated. Further certain fundamental architectural features common to the Konnur, the Aihole and the Brahmagiri types are illustrated above. The marginal contacts between the two types of the passage chambers ; the influence of the Konnur type on the Kaladgi type and the possibility of the appearance of the latter, long after the Konnur type and the impact of the Kaladgi type on the Aihole type and on the partitioned cist type of Chikanahalli-Jewargi area, are pointed out above.

From these analytical studies it is evident that there are close and more or less uniform correspondence in the Konnur, Aihole and Brahmagiri types on the one hand and the Kaladgi, Rajankolur and Hire-Benkal types on the other indicating genetic relationship among the types in each series. The close and substantially fundamental architectural correspondences between the passage chamber and the port-holed chamber types in each series, do not suggest independent origins of them. It is also noteworthy that the Konnur and the Kaladgi types are each found in separate areas whereas the corresponding Aihole and Rajankolur, as also the Brahmagiri and Hire-Benkal types are found together in the respective areas. Thus, all these types do not seem to have separate and independent origins, but represent different stages of development, If so, then, which of them are the earliest and what is the sequence of these stages, are the problems to be solved ?

The Port-holed Chambers

With regard to the four types of the port-holed chambers, it is explained above in Chap VIII as to how architecturally the Brahmagiri and Hire-Benkal types appear respectively to have been developed from their proto-types i.e., the Aihole and Rajankolur types. Let us see if this suggested development is borne out in a wide perspective.

This is also indicated from the spatial distribution pattern of the types in question in a wider context. Port-holed chambers of largely the Hire-Benkal type and excepting the Aihole type have comparatively very extensive distribution from Adilabad District in the northern most part of Andhra Pradesh to Chittor area, Anantapur, North Arcot area, South Karnataka, Pudukkottai-Pulney areas etc. It is, therefore, quite likely that from any of these areas, broadly speaking, North Karnataka might have received this particular architectural tradition. In this case, the Brahmagiri and

Hire Benkal types similar to the respective types of the areas outside Karnataka, should precede the Aihole and Rajankolur types. But that it is evidently not so is clear. For, geographically Aihole-Rajankolur area in a relation to Adilabad area, the lower Krishna valley area is not at the peripheral zone of the receiving end, but is one of the intermediate principal areas. The full-fledged inspiration is from the southern areas, it is difficult to explain the few occurrences if not the absence, of the tombs of the well-developed types in the most favourable Raichur doab area that is in between the Hire-Benkal and Aihole-Rajankolur areas (Fig. 1).

In the sedimentary rocks and Deccan trap areas respectively to the west and north of Aihole-Rajankolur area there are no port-holed chambers. Moreover, the chamber-tombs of Aihole-Rajankolur area are in considerable numbers and do not architecturally show signs of decadence. Since most of the tombs of this area are of the sedimentary rocks unlike the granite-gneiss of the tombs of the other areas, it is likely that the rock-material might be responsible for the comparatively apparent primitive and rude features of the types. But such observation is also not found correct. Far excellent and prominent exposures of granite-gneiss yielding suitable slabs are there all over the area. Yet the limestone slabs of the sedimentary rocks are overwhelmingly preferred. In fact the port-holed chambers of Pattadakal-Akkargal area are of granite-gneiss but built in the same manner as the respective types built in limestone slabs.

Further these types are found in a limited area and are not found elsewhere. If these port-holed chambers were due to the extension of the traditions of the Brahmagiri and Hire-Benkal types almost invariably built in granite-gneiss all over a vast area, it is reasonable to expect the use of granite-gneiss on a large scale and of the lime/sand stone in a small scale with which the builders were gradually to become familiar to use. On the other hand the extent ramains in large numbers undoubtedly reveal the fact that the builders were far more familiar with the exploitation of the rock-materials of sand stone, lime stone etc., exhibiting the well-developed tradition over a long period on the one hand and their novel attempt of exploiting of granite-gneiss for the first time suggested by the massive thick slabs of irregular shapes of even the orthostats let alone the capstones, similar to the sand/lime stone slabs naturally available in such forms, by the rudimentary dressing of the edges and also by the use of both granite-gneiss and sand/lime stone slabs in each of some of the tombs in Aihole-Rajankolur area, on the other. Thus in consideration of the above facts, that Aihole-Rajankolur types having comparatively the primitive rough features obviously preceded the Brahmagiri and Hire-Benkal types.

Passage Chamber

The Konnur Type

Let us now examine the sequential position of the passage chambers of the Konnur and Kaladgi types. In view of the plan and other architectural features of the passage chambers of the Konnur type similar to the port-holed chambers of the Aihole type in the corresponding respects and for the reasons advanced above regarding the use of the particular rock-material etc., in the case of the latter, the former obviously does not follow the chamber tombs of Hire-Benkal and Brahmagiri types.

Now of the passage chambers of the Konnur type and the port-holed chambers of the Aihole type which was gradually developed from out of the other, is to be ascertained.

In this regard, Aihole-Pattadakal area is unique, having port-holed chambers of the Rajankolur type both in sandstone and granite-gneiss, of the Aihole type and passage chambers of the Konnur type and of the Kaladgi type, invariably in sandstone. Let us presume that the Aihole type preceded the Konnur type and try to find out if it is correct. As already pointed out above the striking preference for sand/lime stone to granite-gneiss suggests the well developed tradition over a long period of exploiting the former. But the chamber tombs of sand/lime stone in Aihole-Rajankolur area are numerically smaller than those found in the extensive focal area of the Konnur type located in the upper Ghataprabha where the use of particularly the sandstone etc., for a long period is obvious.

Secondly, if in the Aihole-Pattadakal area the passage chamber of the Konnur type was developed then in view of the exceedingly abundance of the suitable rock material for the type in, around and beyond the area, it is reasonable to expect the focus of the tradition to be there and not in the upper Ghataprabha which is about 100 km west of the area.

Thirdly, when the builders were capable of erecting port-holed chambers of the Aihole type within a short time after the inception of the type it is difficult to explain as to what made them to develop the passage chamber that was not different much from the Aihole type, but for the altogether absence of the port-hole element in it. Further, the absence of the port-hole in the Konnur type does not indicate the end of the idea of port-hole. For, it is vigorously and extensively continued to be made use of in the Brahmagiri and Hire-Benkal types that were developed from the Aihole and Rajankolur types.

Fourthly, it is strange not to find passage chambers immediately in the outside of Aihole-Pattadakal area particularly in the Hagaratgi-Rajankolur area to the north-east where the other types are found, but to find them far away from it in the upper Ghataprabha in the west.

All the above factors suggest that the Konnur type in all probability is not developed from the Aihole type. On the other hand owing to the close similarity of the two types but for the absence or the presence of the port-hole in the latter it is the other way that appears to be correct : the Aihole type being developed from the Konnur type and leading to the development of the Brahmagiri type. Thus, it looks as though that the Aihole and Rajankolur types belong to the transitional stage accounting reasonably for the small number of the chamber tombs of the types in a limited area. Once the Aihole type and subsequently the Brahmagiri type were developed the Konnur type was in course of time given up which in turn accounts for its total absence in the contiguous areas or elsewhere and for the extensive diffusion of and the exceedingly large number of the port-hole-chambers found over a very large part of South India.

The Kaladgi Type

With regard to the passage chambers of the Kaladgi type, it is already pointed out that its focal area is not clearly vindicated. At present it is represented by a very small number and probably in view of its marginal contacts with the Konnur type, appeared long after the beginning of the latter.

Besides in Saundatti area with the Konnur type, the aberrant passage chamber is architecturally similar to Kaladgi typc but for the invariable south orientation. The variable orientation (southwards or eastwards) is found in the specimens of the type in Hallur while the plan of the architecture remains the same there. In Rajawala and in Kaladgi the plan exhibits slight variations resulting into two sub-types. The orientation too is much varied. Further south of Saundatti in Hallur-Rajawala area the Konnur type is not found and the Kaladgi type does not seem to have exerted its influence on the Konnur type. The latter is comparatively less impressive in architectural features. These observations seem to suggest that Kaladgi type is perhaps an indigenous development in the upper Malaprabha—Tungabhadra region owing to the influence of the Konnur type at a late period of the latter, although its independent origin cannot be ruled out.

The possible indigenous development also explains perhaps for the scattered pattern of the sites.

The Port-holed Chambers : Their Development from the Passage Chambers

One noteworthy and individual characteristic feature of the Kaladgi type is the device of the port-hole not found in the Konnur type. It is suggested above that the port-holed chamber of the Aihole type of the Aihole-Rajankolur area was developed from the passage chamber of the Konnur type. However, the occurence of the port-hole in the Aihole type, not found in the Konnur type, is difficult to explain. Of course, in response to local conditions or changing requirements, additions or alterations or introducing new features or devices in the existing pattern or type is a sign of development. Some builder at some stage under such circumstances, without any influence or inspiration from an extraneous source, might contribute to such development. But so far as the Aihole type is concerned, the introduction of the port-hole element and the cutting up of the front top corners of the passage terminating in the intentionally made gap of the enclosing circle, appear to be owing to the impact of the Kaladgi type. In this context it is particularly noteworthy that in the Aihole group, Kyaddigeri area with passage chamber of the Konnur type, contains a sub-type of the Kaladgi type also. It appears therefore that owing to the interactions of the two types of the passage chambers, the Aihole and the Rajankolur types were respectively developed. This interpretation is what appears to be the most plausible from the existing evidence, though it may look somewhat far-fetched.

The Port-holed Chambers of the Western Ghat and Coastal Region Their Bearing on the Problem of Development

Before finalising the above sequence, it is necessary to take into account a few sites with port-holed chambers in the western Coast and Ghat region of Karnataka (Sundara, 1974a) that seems to have some bearing on the problem of the developments.

The port-holed chambers in Belur and Bada Kajekaru near Coondapur and Mangalore ports respectively in all respects but for the passage element, are closely akin to the Rajankolur type. Is it then likely that somewhere from the Coastal area the independent tradition of the port-holed chamber gradually diffused north eastwards as far as Aihole-Rajankolur area ? It may be noted that its diffusion in other directions (before the development of the Brahmagiri and the Aihole types) are not evident since no sites with the type in question are reported so far in areas other than Aihole-Rajankolur. If so, then the Aihole and the Rajankolur types were not developed from the respective Konnur and Kaladgi types as explained above, but appeared in the Aihole-Rajankolur area from a different source, like the Konnur type from another local area. That is to say, North Karnataka received two waves of Megalith builders (or megalithism) represented by the passage chamber and the port-holed chamber from different sources. But in view of the geographical extent of the former and its imposing number comparatively, it appears to precede the latter.

Thus, even if the Aihole and the Rajankolur types had different sources and were not developed from the passage chambers, the sequence suggested above is not affected so far as North Karnataka is concerned.

But this possible hypothesis based on the Coastal and Ghat sites with the chamber tombs and of its diffusion towards the Aihole-Rajankolur area, leading to the development of the types, does not seem to have substance. For, it is most probable that the Kaladgi type found as far south as Hallur owing to the impact of the Konnur type as evident from the plan of the tombs, in the further southward movement of their builders into the adjecent Ghat-Coastal region, was developed into port-holed chambers of the type found in Arehalli, Belur, Kajekaru etc. This would convincingly account for the occurrence of the port-holed chambers of exclusively the Rajankolur type, and the occasional occurrence of the passage element in a few of the chambers which in course of time was given up as evident in the port-holed chambers of the type in Annamalai region. Thus, from the area of the Kaladgi type marked by Hallur in the south, Rajawala in the east and Kaladgi in the north, in the south and southwestward and northward extensions respectively into the Ghat-Coastal region and the Aihole-Rajankolur area, the type was developed into the port-holed chambers of the Rajankolur type probably almost simultaneously. Regarding the relative period of the developments in these two regions, it is likely the beginning in the Ghat-Coastal region might be slightly earlier in view of the occasional persistence of the passage element there, which is absent in the extent chamber tombs of the Rajankolur type in Aihole-Rajankolur area.

If on the other hand the movement is from the Coastal-Ghat region to Aihole-Rajankolur area, then the occurrence of the Aihole-type in the latter area, of certain features of the Kaladgi type in it, are difficult to explain. It may be argued that the Aihole type might have been developed by taking over the port-hole element from the intruding port-holed chamber tradition in the course of the contacts of the two traditions : the passage chambers of the Konnur type of upper Ghataprabha and the port-holed chambers of the Coastal Ghat region. But in such contact of the two powerful traditions the influence would be mutual and not one-sided. Further it also means

that the Kaladgi type found there practically did not exert any influence on the other types of the area. Then how can the occurrence of a few distinct features of the Kaladgi type in the Aihole type be accounted ?

Had this tradition from the Coastal-Ghat region diffused north eastwards to a distance of about 200 km after crossing over the extensive tracts of the Dharwar rocks rather unfavourable to the tradition, how is that it could not make similar diffusion in other adjacent areas on the east, south-east that were environmentally suitable ? In the areas adjacent to the Coastal Ghat area (covering the known limits of Arehalli-Coorg-Annamalli-Bada Kajekaru), such as Bangalore-Kolar area, Pudukkottai area the port-holed chamber tombs are of either the Brahmagiri or the Hire-Benkal types or of other types and not of the Aihole and Rajankolur types.

Orientations of the Chamber Tombs

The orientations, too, of the types appear to corroborate the priority of the Konnur type in age to the other corresponding types. As explained in the preceding Chapters the Konnur type is invariably south-oriented (somewhere between south-west and south-east). But though the Aihole type is mostly south-oriented occasionally it tends to be roughly east-oriented, probably indicating the gradual change being effected in the orientation. The Brahmagiri type is uniformly east-oriented.

Had the Aihole type been developed in course of time into the Konnur and Brahmagiri types, say one after the other in view of their number and extent, it is reasonable to expect the two types to be contemporary at some stage and to be oriented in both the directions, east and south in varying degrees. But the actual orientations of the types noted above do not indicate any such possibility.

On the other hand, they seem to suggest that the variation is gradually from south to east. Hence it is probable that the south oriented Konnur type eventually gave rise to the east-oriented Brahmagiri type through the transitional stage of generally south or rarely east-oriented Aihole type.

Incidentally in this context it is worthy of note that Hunt (1916 : pp. 214-217), briefly discussed about the orientations of the megaliths with reference to the variations in distances between the true pole and the pole-star through the passage of the time as observed in different places. He recorded that the variation as observed in Secundrabad then was 0°.20' west and at Dronakal, 0°.25', and this was increasing by 0°.4.50' every year. Recently, Dr. Lother Wanke[1] is working on the orientations of the megaliths of the Western Europe. He observed that the megaliths nearer the north, faced south-wards and those nearer the equator, eastwards. In the light of his research the orientations of the South Indian megaliths are required to be examined.

Thus at the moment the developmental hypothesis appears to be more plausible. Of the chamber tombs in Karnataka the passage chambers of the Konnur type appear to be the earliest followed by those of the Kaladgi type at a late period of the former. Owing to the mutual interactions of the two types were developed port-holed chambers of the Aihole and Rajankolur types in Aihole-Rajankolur area and the

1. The statement is based on his letter to me. I am extremely grateful to him.

Ghat-Coastal area. Subsequenlly the latter types gave rise to the Brahmagiri and Hire-Benkal types.

The Development of the Other Types of Megaliths

So far the various types of the chamber tombs, their development and sequence are discussed. Regarding the other types such as round barrow, cist-circles, pit-burials, pit-circles, it is elaborately discussed above as to how they were developed indigenously, probably by the local people who were previously in the neolithic/chalcolithic stage, owing to the impact of the passage chamber builders in course of time. Hence there is no need to repeat the discussion here.

The Sequence and the Associated Cultural Remains

Hitherto exclusively from the points of view of the distribution pattern, of the architectural features and of the mutual influences of the different types, the chamber tombs are studied and their probable sequence is arrived at. Let us try now to check up if the sequence is correct in the light of the associated finds known from a few of the sites.

Pottery

It is observed already in the Chap. IX that in general the passage chamber tombs of the Konnur type have comparatively a small proportion of the black-and-red ware and the least influence of the chalcolithic culture of the region on it. The Kaladgi type and the round barrows of the upper Tungabhadra have very high proportion of the black-and-red ware of the chalcolithic affiliation whereas the Brahmagiri type, the pit-circles and burials etc., of the lower Bhima, Krishna and Tungabhadra valleys have less varying proportion of the black-and-red ware and the red ware, with an admixture of a few surviving chalcolithic/neolithic pottery types.

Types of the Pottery

Coming to the types of pottery, it is well known that the excavated megaliths of each area as for instance Brahmagiri, Maski, Jadigenahalli, Terdal, Halingali etc., have yielded certain distinct types of pottery, besides other types usually common to many of the megaliths of different areas and types. Unless more and more habitational sites come to light and are excavated along with the megaliths nearby, it is difficult to trace their modes of distribution and focal areas and the implication of cultural contacts. Likewise, the varying frequencies of the common types may have some significance of contacts and movements and can therefore be examined easily.

It is noteworthy that the excavated as also the disturbed passage chambers of the Konnur type are found to contain particularly the red ware vase with heavy collared and undercut rim, coarse red ware lid with flanged waist, shallow dish and hemispherical deep bowls (figs. 17 and 18) in far more numbers.

In Brahmagiri and Maski also the excavated megaliths and the megalithic and the early historical habitational deposits have yielded these types. However comparatively the varying frequencies of their occurrences appear to be significant.

In Brahmagiri while the cist-burials are found to contain these four pottery types C'1-C'5 (Wheeler : 1948 : Fig. 9) and C'11, C'12, C'13, C'15, C'21, and C'24

(Fig. 10) in the pit-burials the distinct hemispherical bowl and the lid with flanged waist are absent. The other two types are not as frequent as in the former. The lid with flanged waist is found not in the megalithic habitational deposits but in the early historical deposits.

In Maski while the habitational deposits yielded all these types, the pit-burials of all the four types and the cairn stone circles are found to contain none of these types excepting the bowl type in B(i) type burial only.

From the above analysis it is clear that :

i. There is close relationship between the Konnur and the Brahmagiri type (i.e., cist-circles).

ii. The pit-circles of Brahmagiri the pit-burials and the cairn stone circle of Maski do not clearly seem to have such relation with any of them, but appear to be the recipients of the influences from them.

iii. Further, the pottery types occurring variously in the megalithic habitational deposits, become common in the early historical deposits.

It is therefore likely that these pottery types appeared in the region perhaps sometimes after the beginning of the Iron Age Megalithic Culture and became gradually more frequent particularly in the early historical phase. Consequently, the occurrence of some of the types or their absence in the pit-burials or circles and their profusion in the passage chamber tombs would seem to indicate an earlier date for the former. The latter appear to be nearer the early historical phase and if so, the Brahmagiri type is even likely to precede the Konnur type. Thus there appears to be contradiction between the implication bearing on the sequence of the types suggested by the distribution pattern, architectural features etc., on the one hand and the frequency and the distribution pattern of the pottery types on the other.

Certain Chalcolithic Pottery-Types : Their Influence

In this regard certain chalcolithic plain and painted pottery types of Savalda fabric found in many chalcolithic sites of the upper Krishna valley (Sundara ; 1971d: pp. 13-30) appear to remove the apparent contradiction and to corroborate the sequence suggested by the distribution pattern etc.

Among the Savalds pottery types are the lid with flanged waist and vase with collared rim (Pl. X ; 13, 34, 37) not found in any other chalcolithic/neolithic culture of either this region (1970a : pp. 1-13,1971: pp. 1-8) or in the Deccan, and in considerable quantities. Though the stratigraphic position of this pottery is not known, yet in view of certain painted motifs peculiar to the pottery occuring on the grey ware pottery (1971d: Pl. X : pp. 19-23) of definitely chalcolithic culture and the adaption of the lid with flanged waist type in the latter fabric would undoubtedly indicate the contemporaneity of the two at some stage (pp. 21-22). These pottery types appear to be the proto-types of the respective types in question found in the chamber tombs of the Konnur type. And it is noteworthy that the focal area of the Konnur type is close to or in the vicinity of the upper Krishna valley. In fact Terdal-Halingal megaliths of which Halingali Mg III yielded the pottery types in large numbers, are very close to the chalcolithic site in Terdal providing a specimen of the type in greyware

and to the site at Satti. It is clearly evident therefore that the source of the types is found in Savalda pottery contemporary with the chalcolithic culture of upper Krishna and the megalith builders of the Konnur type were obviously the first to adapt these types and from them they were diffused. The invariable presence of the types in the chamber tombs of the Brahmagiri type and vagurish occurrence of the types in pit-burials circles, etc., would suggest respectively the genetic connection of the former and its subsequent development and the impact of the Konnur type in the dovelopment of the latter. Thus these pottery types clearly indicate the proximity of the passage chamber tombs in time and space with the later phase of the chalcolithic culture of the upper Krishna and not with the late phase of the megalithic or the beginning of the early historical cultures.

Other Antiquities

The other pottery-types, iron objects etc., do not seem to have any particular bearing on the problem and to affect the derived sequence. The probable percolation of the graffiti of the chalcolithic culture of the Godavary valley into the megalithic culture of Maski—Brahmagiri area and its absence in the pottery from the chamber tombs of the Konnur type also support the sequence.

The Cultural Overlaps and C-14 Datings

In the above pages, in consideration of all the basic aspects of the principal megalithic types a sequence is arrived at which is absolutely necessary for the discussion of the problem of chronology of the megaliths. For, all the types of megaliths in the region though variously contemporary to one another at some stages did not appear or originate and come to an end at the same time. So a date-range suggested to the excavated megalithic culture at Maski and Brahmagiri by the excavators subsequently the revised dates thereof cannot be applied to all the megalithic types of the region. Now, therefore, follows the discussion of the problem of ascertaining the chronology of the types.

Port-holed Chambers of the Brahmagiri and Hire-Benkal Types

Brahmagiri Evidences

In Brahmagiri, a clear cut overlaps of the neolithic and the megalithic, is methodically established, supported by the occurrence of a neolithic urn burial in an otherwise megalithic context (Wheeler ; 1948 : p. 207). Further, group B pottery from the pit beside the Cist VI stratigraphically prior to it contains megalithic black-and-red ware pottery and also a black-and-red-painted jar (Fig. 17 ; 12 : pp. 221, 223) in type and surface decoration analogous to the chalcolithic Jorwe pottery. It is discussed above that the presence of the pottery of Jorwe fabric here and in the uppermost neolithic layers in Sanganakallu, Piklihal and Hallur, was due to the intrusion of the chalcolithic culture of the Godavari valley along the Bhima into the Krishna Tungabhadra valleys, in about 1000-800 B.C. This pottery probably must have reached the Tungabhadra latest by about 800 B.C.

Again this chalcolithic intrusion as pointed above was immediately followed by the megalithic in the Krishna-Tungabhadra Doab. Since the chalcolithic black-and-red ware and the megalithic black-and-red ware pottery are found together in the pit

enterior to Cist VI, at Brahmagiri the beginning of the megalithic culture, may reasonably be assigned to about 700 B.C. at the latest.

Here it is necessary to examine Wheeler's dating (1948 : pp. 200-202). He on a careful and critical analysis of the diagnostic evidences under the well observed conditions, of particularly the Roman and Shatavahana coins and the rouletted design of definitely Roman origin on a few pottery pieces against the historical perspective of the 3rd c. B.C—2nd A.D., arrived at a date of first half of first c. A.D. for the beginning of the "Andhra Culture" at both the sites though he incidentally remarked that "the bulk of the Brahmagiri material must be of earlier date than that of the other two sites" i.e., Arikamedu and Chandravalli p. 274.

My study (Sundara; 1975) of the site and the archaeological evidences discussed by Wheeler, seems to indicate that his incidental remark is more correct than his studied chronology. Let me explain it.

Of the eight trenches Br. 17—Br. 23 (Wheeler : pp. 203-207) besides re-examing the earlier trench Br. 16 of Dr. M.H. Krishna, Br. 18, 19 and 20 about 190, 210 and 230 m southwest of the Asokan Edict along the foot-hills. In this area called here A, only early historical culture is found in Br. 18 and overlying the neolithic culture in Br. 19 and Br. 20 without the megalithic cultural remains. The sequence of the culture in this area indicates that the people of the Early Historical Culture settled here, that was once partly occupied by neolithic people, and was deserted by them long before. On the surface of the area brick bats are sparcely found. It is noteworthy that the Asokan edict and the apsidal brick structure on the slopes of the hill are comparatively very near the area. Thus it appears that the area was the nucleus of the Early Historical Culture.

About 500 m or 700 m away from the Asokan edict and the area A respectively, along the foot-hills are the trenches Br. 21, 22, 23 and a little further south-eastwards Br. 17. In this area called B while the neolithic culture alone is found in Br. 17, all the three cultures are disclosed in the others. It appears therefore taking into account the geography of the site also, that there were two separate neolithic settlements one at area A and the other at area B. I have come across in the course of my explorations (Sundara ; 1968) many localities each with more than one site. And in some the distance between the two sites is about 200 ml. The megalithic culture was concentrated in a part of the area B with Br. 21, 22 and 23, probably not extending from beyond Br. 17, on the one side and not upto area A on the other.

In view of the overlap of the megalithic and the Early Historical Cultures obviously the Megalith builders were still actively flourishing when the Early Historical settlement started. It is difficult to surmise that the latter at the beginning was extending all over the areas of A and B. Generally, it is equally unexpected that the later people started settling straight in the midst of the earlier people without mutual understanding. It is most probable that they would first settle in an area a little away from the existing earlier habitation and in course of time would extend into the other. This is what appears to be in Brahmagiri from the distribution pattern of the settlements as known from the excavations, and amounts to point out that the early historical settlement was first in area A and subsequently in area B along with the Megalith builders.

Coming to the excavated seven, pieces of the rouletted pottery (Wheeler; p. 206) they are found in the lowest of the layers of the trenches in area B. In view of the above aspect which has not considered by Wheeler they evidently do not belong to the earliest part of the duration of the settlement but somewhere to the mid-phase. Thus, the pottery pieces would not suggest the beginning phase of the culture.

It is noteworthy that none of the trenches yielded either coins or brick structural remains.

In Chandravalli, from the middle-phase of the early historical culture coins of Maharathi Sadakana Kalalaya in considerable numbers are found from layer 10 upwards (pp. 291-92) and the rouletted pottery pieces in layers 10 and 9 preceding the punch-marked coin in the layer and the coin of Yazna Sri Shatakarni (169-196 A.D.) in layer 6. The brick structural remains are found from about layer 7 onwards.

If the coins and rouletted pottery could be dated to first half of 1st A.D., then the beginning of the culture represented by the layer 13 and upwards of considerable thickness should be earlier and might probably be in the later part of 2nd B.C.

This culture overlaps with a culture characterised by the pottery of 'megalithic fabric' (pp. 274-77). In the earlier excavations of Dr. M. H. Krishna (1931 : pp. 25-26, Pl. IX) were found six stone oblong-cist-burials without port hole not standing comparison with the port-hole cist-burials of Brahmagiri. Besides, Wheeler had pointed out that the majority of the pottery types were not closely represented at the latter. The cultures here, therefore, represented the last phase of the megalithic culture of the region which is not found in Brahmagiri. In the latter, as explained above, the Early Historical Culture overlaps with the full-fledged megalithic culture. Evidently the beginning of the overlap at Brahmagiri is earlier than at Chandravalli. Relatively the early historical settlement in area A is the earliest and therefore could be placed to the beginning of the 3rd c. B.C. The proximity of the Asokan edict to the area A therefore is significant and meant for the early historical people there, and not for the pre-literate primitive neolithic people as implied by Wheeler's chronology of the cultures or the Iron Age Megalith builders of tribal type also of pre-literate stage as suggested by Haimendorf but to the early historical people in the literate stage and the megalith builders must have arrived there in the pre-Mauryan period.

In view of these formidable evidences the chronological implications of the rouletted pottery becomes too feeble for serious and exclusive consideration for Brahmagiri Early Historical Culture. What is therefore needed is more exact observation of the stratigraphic context of this pottery in considerable number at this place for the occurrence of this definitely datable pottery cannot be ignored.

Further, the use of coins and structural activity in bricks at Chandravalli must have been at the latest from about 1st c. A.D. (i.e. during the Shatavahan period) and were continued briskly for about two centuries. But in view of the absence of coins and brick structural remains in the excavated areas at Brahmagiri and of the existence of a quite few brick structures represented by the spsidal brick structure, it is probable that immediately after the beginning of the structural activity and the currency of coins the early historical people probably left the site.

An iron object from Mg. II is identified as plough-coulter by Dhavalikar, (1968) and according to him it is probably of Roman import in the latter half of the 1st c.B.C.

Now to sum up ; the chronologies of the cultures at these two places are :

i)	The Early Historical Culture at Chandravalli	:	Mid 2nd c.B.C. 3rd c. A.D.
	,, ,, ,, at Brahmagiri	:	3rd c. B.C.— 1st c. A.D.
ii)	Megalithic Culture at Chandravalli	:	2nd c. B.C.
	,, ,, ,, at Brahmagiri	:	8th— 1st c. B.C.
iii)	Neolithic Culture at Brahmagiri	:	1600-800 B.C.

Further in Hire-Benkal area the peculiar mode of depicting the reins of the horses held by the riders of the rock-paintings Nos. 1, 5 also suggest a date earlier than 900-600 B.C. for the beginning of the culture there since the mode of holding the reins cannot be expected at least from the Mauryan times onwards.

Thus the port-holed chambers of the Hire-Benkal and Brahmagiri types as also the pit-circles and pit-burials of the Hire-Benkal-Brahmagiri area and of the Raichur Doab may reasonably assigned to circa 800-100 B.C.

Port-holed Chambers of the Aihole and Rajankolur Types

Relatively, megaliths of the middle phase i.e. of the transitional stage, in Aihole Rajankolur-Lingasugur-Chikanhalli-Jewargi area and in Hallur-Western Ghat-Coastal area may reasonably be placed between circa 900-600 B.C. The C-14 datings for the early part of the overlap phase at Hallur, containing megalithic cultural strain, obviously represented by the passage chambers of the Kaladgi type and the round barrows, are 1015 and 955 B.C. These C-14 dates, as they are corroborated indirectly from the dates of the other sites as explained above in the Chap. VIII are thus dependable. Since the Aihole-Rajankolur types are found to have been developed from the Konnur Kaladgi types and round barrows etc. are of indigenous origin owing to the impact of passage chamber builders, they may be placed slightly later than the Kaladgi type i.e , circa 800-600 B.C. and the Kaladgi type, in 900-700 B.C.

Passage Chamber of the Konnur and Kaladgi Types

Indirectly, the initial date of the passage chamber of the Kaladgi type, would roughly be the same for the upper part of the passage chambers of the Konnur type in the Krishna-Ghataprabha and the Malaprabha valleys.

The C-14 datings of the charcoal samples from the earliest two layers of the chalcolithic habitation site (Vibhutimaddi) at Terdal are : 2155±100(2220±105), and 3720±120 (1770 B.C.) and 3885±100 (1935 B.C.) A study of the antiquities from the

surface of many chalcolithic sites of this part, indicates that essentially the cultural characteristics are analogous to those of Piklihal lower neolithic and Brahmagiri IA. It appears therefore that the chalcolithic culture had ended perhaps a little earlier in this part than in the Krishna-Tungabhadra Doab where by about 1000-900 B.C. at the latest probably the culture was intruded by the chalcolithic culture of the Godavari valley and by the Iron Age Megalithic Culture probably in circa 800-700 B.C.

Moreover the culture of the upper Krishna valley has hardly any indication of the spread of the chalcolithic culture of the Bhima valley into it, unlike that of the Krishna-Tungabhadra Doab. Probably it appears therefore that the culture in the former was being already intruded strongly by that of the megalith-builders represented by the tombs of the Konnur type sometime before the chalcolithic intrusion was taking place in the latter. This is what appears to be even from the excavated chalcolithic round barrow in Terdal. Here raising of the cairn packing over the burial, a typical feature of megalithic burials ; the presence of some fragments of megalithic potsherds in the cairn packing, the situation of the barrow in the midst of the megalithic tombs and the absence of iron objects and megalithic pottery in the burial proper would apparently suggest that the burial was erected sometime soon after the arrival of the megalithic builders who used pottery for the tombs nearby, of the fabric similar to that of the sherds.

In view of the above factors therefore the probable period of the end of the chalcolithic culture in the upper Krishna appears to be circa 1000-900 B.C. and the barrow seems to belong to the survival phase of the culture datable to circa 900-800 B.C. That is to say the Megalith builders had already begun their activity in about 1000 B.C. in Terdal area where a developed stage of the Konnur type is discernible. In the focal area of this type i.e., the Upper Ghataprabha the beginning of the building activity is probably a little earlier. Besides, the particular types of pottery such as vases with collared rim, lid with flanged waiste discussed above also suggest contact between the passage chamber builders and the chalcolithic people of the late phase in the Upper Krishna. These contacts may be placed between 1100-1000 B.C. There are about 2500-3000 chamber tombs of the Konnur types a rough guess of at least 300 to 500 years as the period of their constructions may be hazarded. As pointed out above the date range for the end phase of this type is suggested as 900-700 B.C. in relation with the Kaladgi type. Thus all these factors suggest that the beginning of the tradition of the passage chamber of the Konnur type in the upper Ghataprabha may be assigned to 1200-1100 B.C.

The C-14 date (TF-685, 2030+100 i.e., 80 B.C.) from the previously disturbed Megalith III (a sub-type of passage-chamber of the Konnur type) at Halingali, cannot be duly considered unless the date is confirmed by a few more C-14 dates from more passage chambers of the Konnur type. The date may only indicate that the megalith was already in existence in c.100 B.C. and perhaps the period of the disturbance.

Menhirs and Stone Alignment

The chronological range of the stone alignments in North Karnataka is difficult to ascertain as they are non-sepulchral. Secondly, in what way it is related to the

Megalithic Cultural complex of South India is yet to be known. This type is therefore not included in the above sequence. But that it is post-neolithic is evident at Shakapur.

With regard to the menhirs of Southern Karnataka of the type found in Nilaskal since it overlaps with the port-holed chambers of the Brahmagiri type and forms part of the tomb architecture as found at Managondanahalli it is likely that it might have appeared in this part somewhere during the phase of the Brahmagiri type perhaps from about 500 B.C. onwards.

Now to sum up :

Early phase :	1. Passage chambers of the Konnur type.	1200-700 B.C.	Prabably discontinued subsequently.
	2. Passage chambers of the Kaladgi type. Round barrow of Terdal type.	900-700 B.C.	,, ,,
Middle phase :	Port-holed chambers of the Aihole, Rajankolur types of Aihole, Rajankolur and Western Ghat and Coastal areas.	800-600 B.C.	Probably discontinued subsequently.
Middle phase :	Round barrows of the upper Tungabhadra and the Malaprabha. Passage oblong cist pit and cist-circles of the lower Bhima river.	800-600 B.C.	The types continued in the succeeding phase but without the passage element.
Late phase :	Port-holed chambers pit-circles, oblong chambers in Hire-Benkal and Brahmagiri regions and Southern Karnataka and Menhirs of Western Karnataka.	800-100 B.C.	The last three types probably continued up to 2nd or 3rd Century A.D.

Thus, it appears that so far as Karnataka is concerned the passage chamber tombs of the Konnur type are the earliest and their builders heralded megalithism in the region and perhaps in South India. That is what appears to be the most plausible in the light of the hitherto available evidences in North Karnataka discussed above. Yet independent origins of passage chambers of the Kaladgi type and port-holed chambers of the Rajankolur type cannot be totally and finally ruled out.

In the other parts of South India megaliths of the types excepting passage chamber types, the Aihole type and round barrow of the Terdal type, are found variously in different parts. They according to the above discussion on the sequence, have their origins in North Karnataka. The port-holed chambers and the oblong cists with some regional variations found in Kerala, Tamilnadu and Andhra Pradesh seem to have been derived from the port-holed chambers of the Hire-Benkal and the Brahmagiri types in North Karnataka in the wake of their southern, eastern and northern diffusions.

Further, there are certain types peculiar to the respective regions, as e.g. the Kuda-kals, the Topi-kals of Kerala; sarchophagus burials, thick-pyriform urn-burials of the type found in Tirunelvelli district area, in Tamilnadu and Southern Karnataka. But the available evidences from the disturbed and excavated megaliths of some of

these types and of the port-holed chambers do not suggest any high antiquity for them as that of the passage chambers. Thus, at present, the chamber tombs and the other types of megalithic burials in North Karnataka appear to be the earliest of the South Indian Megalithic Culture.

However, there are other types such as passage circles, passage chambers and port-holed cists etc., respectively reported from the sites such as Sanur, Mamandur (Ramachandran, K.S. 1971; Fig.-5) and Pudukkottai etc. The passage circle and the Mamandur chamber tombs (not described fully yet) appear to be generally similar to the passage circles of Terdal-Halingali and sub-type found at Hallur of the Kaladgi type, respectively. The rudeness of the dolmenoid cists would tempt one to take them to represent an early type of high antiquity.

In Coimbatore district the chamber tombs of the type found in Pulney area are comparable as mentioned above to the Rajankolur type. But these types are not thoroughly studied. Their extents, distribution patterns, architectural features, mutual influences, sequence are little known.

Unless therefore every area is systematically and thoroughly studied and such regional studies are co-ordinated, the above conclusion that the passage chamber tombs of North Karnataka represent the earliest phase of South Indian Megalithic Culture, is provisional and subject to correction and revision in the light of future explorations and excavations of the megalithic remains in the other regions.

11

MEGALITHIC CULTURE IN NORTH KARNATAKA : An Outline of the Salient Features

After studying the various aspects of the megaliths and their types in North Karnataka in the above pages, a reconstruction of some aspects of the life and society of the megalith builders in North Karnataka in particular, is now attempted. But the emerging picture is bound to be incomplete and sketchy as the data for the assessment is largely from the megalithic burials and a few megalithic habitation sites at Maski, Sanganakallu and Hallur in North Karnataka and a few in South India as for instance at Brahmagiri, Kesarapalle (Sarkar, H. ; 1966 : pp. 37-74), Kunnattur, Sengamedu (Banerjee ; 1956a : pp. 43-46) Paiyampalli (IAR ; 1967-68 : pp. 28-29), Tirukkampuliyur, etc. But these excavations are in the nature of indexing cultural traits and posing more problems, and shedding a little light on the everyday life of the people. Lastly, no evidences suggesting that the society was literate, have yet been obtained from the megalithic levels if graffiti on the megalithic pottery does not turn out to be symbols of writing. No literature of the subsequent period of this region shed light on the cultural life of these ancient peoples. However, the rock paintings in Hire-Benkal are rather informative in some respects.

Location of the Sites

The megalithic people generally preferred hilly sites nearby some perennial water source as stone for building megalithic tombs was an absolute necessity, and probably also the hilly tracts rich in iron ore and gold bearing reefs. Especially, the passage chamber tomb builders concentrated near the river valleys in hilly terrains, like their predecessors : the neolithic and chalcolithic folk. The extent of the sites suggest that the localities were usually large in area. Further, whether the people clustered near some water flowing hilly valleys for the purpose of raising irrigational tanks for securing water for cultivated fields, is not clearly borne out by the available evidences.

Architecture

Domestic Architecture

There are scarcely evidences giving some idea about the domestic architecture

in spite of the fact that the people did haul huge boulders and slabs and built tombs of various types of no less architectural merit and suggesting their empirical skill in meeting the architectural problems. In Hallur part of a lime plastered floor of rectangular plan was discovered in the overlap phase and some port-holes were noticed in Maski and in Brahmagiri. It is therefore suggested that the house possibly were simple and of perishable materials such as wattle and daub and thatched or reed roofs.

In the recent excavations at Paiyampalli, the floors of the house exposed were made up of stone chips covered with murram and plastered with lime. Occasionally, a rubble flooring was also provided on the periphery of the house. The plans were generally either circular or oval or oblong. The house usually consisted of a single room, but in one case double rooms.

Sepulchral Architecture

In contrast to the absolutely rudimentary nature and types of their dwellings, the tombs are invariably built with rough and huge stones and display varieties of types ensuring permanancy to the structures. At every stage from the selecting and quarrying of stones to the constructions the megalith builders revealed considerable skill. They were adept in handling almost every kind of stone available in North-Karnataka, but using judiciously a particular stone for a particular part of the tomb. The varied tomb types in different geological zones are essentially due to the traditional affiliations rather than environmental influence.

It is observed that the plan of the passage chamber is either trapezoidal or rectangular. As described exhaustively already above, the hind orthostat generally is held in between the side orthostats the lateral edges of which usually outstretch it. The trapizoidal plan does not seem to be accidental but is intentional as it is repeated to a large extent. This plan is resorted to obviously to secure stability to the chamber built with slabs without binding material. For, in this plan the rear part is wider than the front. That is to say that the side orthostats are not parallel to each other, but slightly converge towards the front. Consequently the rear orthostat now making an acute angle with the side orthostats, can not fall inwards as it is checked up by them. Thus although the plan is simple, it is intelligently preferred.

The hind orthostat acts at either end as buttress to the side orthostats. Further, the front edges of the side orthostats support the front uprights the lateral edges of which invariably outstretch them. Owing to this kind of arrangement of the orthostats, at the top corners the orthostats now appear and act as cross-support to carry the load more securely of the prodigious capstone of unequal thickness and of irregular shape producing pressure of varying degree and haphazardly.

The cairn packing, hemispherical or otherwise, raised almost upto the capstone would not allow the outward collapse of the orthostats.

As evident from some of the disturbed passage chambers there appears to be some proportional relationship between the varying diameters of the packing on the one hand and the height of the chamber and the length of the passage on the other. The higher is the chamber ; consequently the longer are the diameter of the cairn

packing and the passage that should terminate at the periphery of the packing.

The chamber is usually at the centre of the enclosing circle or rectangle. The enclosing circle or rectangle or square is perfect. In the case of long barrows, the chambers are spaced almost at equal distances from one another and are equi-distant from the edges of the packing. The length of the barrow is invariably double the breadth.

Even the erection of the pillars whithin the chambers of the two types, the circular passage chamber and the chamber of Greek or Latin Cross type of Terdal group, is on the principle of equi-distance. The provision of an intermediary circle in some cases of the circular passage chambers is obviously necessitated for supporting the radially arranged multiple capstone as shown in the figures 5 and 8 to avoid the possible disturbance to the intermediary circle it was supported by the cairn packing on exterior side also. And to hold up the exterior cairn packing another circle or rectangle at the edge of the packing is necessary. Thus the provision of double circles or a circle and a rectangle is functionally justified.

In the case of one of the sub-types of the passage chamber of the Kaladgi type, the plan is roughly hexagonal probably to provide maximum space within the chamber since the enclosing circle is generally small which is almost standardized in its diameter i. e. 3.50 m and usually consists of 13 to 15 stones.

Further, it is noticed that in the circle there is usually a gap just in front of the low lying passage. The top corners of the two boulders of the circle flanking the gap, are regularly cut at right angles. Into the cut top corners is fixed at suitable rectangular boulder. In so doing the gap in the circle is converted into an opening in the circle leading to the passage. This kind of device of providing an opening in the circle evidently speaks of the advanced skill of providing contrivances wherever required in certain types of megaliths.

The utility of contra-clockwise and clockwise plan of the port-holed chambers of the Hire-Benkal and Brahmagiri types, is too well known to repeat here. The plan eliminates the possibility of inward collapse of the orthostats. The exterior coursed cairn packing curling towards the top is indeed a noteworthy device of providing a more firm exterior support to the orthostats.

Thus, interlocking of the orthostats of the chamber tombs, providing cairn packing externally buttressing the chamber to avoid outward collapse, centring the tomb within the enclosing circle or rectangle or perfect circles, display of the relative proportions in the dimensions of the passage, the chamber, and the cairn packing, obtaining required area with the available sizes of the stone slabs by contriving various types of plans, setting up pillars to support multiple capstones, constructions of the coursed walls, at once indicate the practical skill and simple arithmetical knowledge of structural engineering.

Regarding the raw materials of the megaliths quartzitic sandstone, granite, laterite, Deccan trap, are the principal rock materials variously used for the construction of the chamber stone circles. Besides, pegmatite or white quartz fragments, river worn pebbles of quartz and conglomerates, were also used though not on a

large scale, for the constructions. It appears that different kinds of stones according to their natural forms and appearances were used to specific parts of the megaliths. The river worn pebbles, rubbles of quartzites, quarlizite sandstones and of Deccan Trap were utilised for raising cairn and the laterite neatly cut into rectangular blocks, was used for the circles, and sandstone slabs exclusively for the chambers as the supply of convenient slabs on large scale at hand that could be directly used for the chambers, is enormous. So far as the pegmatite is concerned, its use in the cairn packing was restricted to the cairn packing of the passage chambers only and of the Konnur, Aihole groups and of the Greek or Latin Cross types of Terdal-Halingali group and never for the other types.

Employment of almost every kind of locally available stones suitable for the constructions; neat cutting of latterite, sandstone, conglomerate and fine dressing of their surface into a perfect convex form of required curvature, are instances of their knowledge of local geology, skill in exploiting the natural resources and stone cutting, dressing. But in spite of their being adept in stone dressing, dressing of the orthostats had been scrupulously avoided.

The fine dressing is normally confined only to the exterior of the blocks of the circle that would ultimately be concealed in the cairn packing. The dressing, therefore, was perhaps due to a part of the ritual and not due to the constructionalne cessity. Sometimes the exteriors of the blocks of the ractangle are roughly dressed. Excepting these no other parts of the megalith have even rough dressing.

In Konnur, Terdal and Saundatti groups, there is no evidence of regular quarrying of stone slabs for megaliths, as the required materials are abundantly available in suitable forms, whereas in the other groups having chamber tombs in the zones of the Bhima series and of the Peninsular gneissic Complex, Granite slabs were quarried.

In particular, the plan of the sepulchral passage chamber tombs of Greek or Latin Cross type would remind one about the Trikutachala temples of historical period in North Karnataka and thus the builders were pioneers in the structural stone architecture.

It is the construction of tombs with rough undressed, huge stones that uniquely distinguished this culture in the cultural history of man in South India and the Deccan.

Economy

Agriculture and hunting were the chief forms of the economy of the society attested by sickles and plough coulter (Dhavalikar; 1968) from the excavated burials and the hunting scenes of the rock-paintings in Hire-Benkal. Rice and Ragi were grown for food. The charred grains adhered to an iron arrow head from the overlapping phase in Hallur is identified as Ragi. Elsewhere, in Coorg (Cole, R.A.; 1969 : pp. 54-59) a pot from a cist contained paddy husks and other pottery vessels ragi. Rice itself was found in one of the exposed burials in Kunnattur (IAR ; 1957-58 : p.37). Even today rice and ragi are the main food in the Malnad region of Karnataka and also of South India. Besides, meat got from hunting and domesticated animals must have supplemented the food supply.

It seems community hunting was carried on, the horse-back as implied by the hunting scene of the rock-paintings in Hire-Benkal. Pea-hens, peacock, stags, antelopes were hunted for food and tigers were killed obviously to avoid catastrophic attacks by them on their cattle and community.

Cow, oxen, sheep, dogs and horses were domesticated for food, farming and for hunting.

Circular pottery discs with central perforation recovered from the megalithic levels, may be either toy cart-wheel or spindle whole suggesting spinning. The bottom of a burial jar (Pl. XXXI), as mentioned above, from a cist at Managondanahalli, bears woven mat impression, indicating cottage industry of matweaving. Bead making is another home industry. Even though direct evidences regarding iron smithy and gold mining are not yet obtained, in view of the profuse use of iron objects and gold beads and the concentration of the sites near iron and gold bearing rocky areas it is most likely that people carried on local iron smithy including prospecting iron ore and smelting and gold mining. Till recently that both the industries were flourishing in a number of villages in this region is attested by the iron smelting sites and gold working pits noticed in several localities mentioned above. The recent researches on the ash mounds seem to suggest that they were due to iron-smelting activity in the overlap phase of the neolithic and megalithic cultures.

Utilitarian Objects

Iron Objects

The tools and weapons used for agricultural and hunting operations are sickles, plough coulter, knives and lances, sometimes spike-studded swords, sometimes with serrated edge axes with splayed out crescentic working edge, bows, especially arrow and spear heads were more from Hallur and Maski.

Other iron objects of domestic use are tripod stands and saucer lamps.

Pottery

Their most common utensils of domestic use are the pottery vessels. The pottery vessels are of three fabrics : the black and-red ware, the all-black ware and the red ware. The vessels of these fabrics are of two varieties : highly burnished, polished and fine and unburnished, coarse. The thick polished slip of the pottery is a characteristic of this culture. The black-and-red ware was produced by a technique of what is hitherto called 'inverted firing' which according to the recent researches appears to be misnomer. The attractive double colour effect of this pottery seems to have been produced by 'double firing' method. Most of the pottery is wheel made while big jars of thick coarse section are obviously hand made probably by building method. The black-and-red ware vessels and the all-black are usually of fine core of levigated soil. Medium to small sized vessels such as bowls of various types dishes, lids, dish-on-stand and vases are in these fabrics. The red ware pottery are generally of coarse gritty core. Platters, big vases of varied types, basins and jars of thick sections are in the ware.

Pottery of these fabrics have regional variations in their preferences by the megalith builders. The passage chamber tomb builders seem to have used the black-and-red ware pottery much less, while the round barrow builders in the Southern

Dharwar region, utilised it most and the megalith builders in the Raichur Doab, pottery of all the wares in more or less equal proportions.

Rarely some post-firing scratches of curious, usually, linear designs, called 'graffiti' are found in the interior or exterior or on both sides of the pottery vessels. Most of these graffiti can be traced back to the post-Harappan chalcolithic and Harappan times. It appears by way of regional comparisons that this feature does not seem to be a regular feature of the megalith builders in, the beginning, but was adopted from the chalcolithic folk with whom they came in contact.

What these graffiti are, is still unravelled. Various interpretations such as that they are potter's marks, symbols of some script, symbols of to tem etc., have been given to them.

Mostly, the pottery is plain, and without any applied decorations. However, the black-and-red ware pottery of the Hallur region occasionally painted in dull white glue like paste on the exterior as well as in the interior. The designs are liner such as groups of parallel, straight of oblique or radiating lines. But the art of painting the pottery in white seems to have been derived from the chalcolithic culture as apparent from the evidences of North Karnataka.

Big burial jars are with bulgeous body and narrow pointed bottom applique designs round the neck with unconnected ends curved backwards or downwards sometimes with two protrusions suggesting woman's breasts (Pl. XXXI; 1) and with mat impression on the bottom (Pl. XXXI ; 2). The jars thus have symbolic appearance of a pregnant woman and is made by building method.

Ornaments

The people seem to be moderate in ornamenting their persons. Beads of usually cornelian, sometimes etched in white, of jasper, magnestie, terracotta, shell and occasionally gold and bangles and finger rings of copper, iron and shell, rarely in many numbers are found in the burials. They are usually of simple forms and plain. Sometimes, necklace of conch shells was worn, probably by a person connected with some religious routine of the society.

Art

The aesthetic sense of the people is reflected in their ritual motivated rock-paintings. Though the human and animal figures are generally drawn in certain conventionalised forms, sometimes in realistic representations were attempted showing even the fingers of the human hand, the udder of the cow, the cock-tail of the peacock.

But the figures are shown mostly in standing postures even when they are on the horse-back. However their keen perception is evident from the display of cow's udder etc. The mode of showing the reins of the horse held by the rider is very peculiar and appears to be very primitive. Like Stone Age prehistoric artist, the figures are painted helter-skelter, in a given area, without any far-sighted planning.

Usually, the subjects of the paintings are hunting scene and group dancing. The representation of hunting scene appears to be a part of a hunting ritual to ensure successful hunting like those of the Stone Age cave-dwellers.

The group danc ng appears to represent the social entertainments or ritual performance that the people had in their localities. A group of two or five or seven

etc. hand-in-hand, holding weapons, are shown as if in dancing attitude.

Usually, the rock-paintings are found in the normally inaccessible places and contain largely the figures of animals, birds, geometrical designs etc. Their locations and the subjects seem to suggest their connections with hunting and fertility rituals for procuring the creatures for food and for increase of their progeny.

They are depicted in shilhoutte. In this style of depiction, one gets an idea, rather vague, of the subject depicted as their moods and physical features can not be duly brought out. After all these paintings are for ritualistic purpose, not for art's sake and hence symbolic. Thus, there is no need for the person to depict the subject realistically in its details. In spite of the limitations imposed by the purpose in the execution of these paintings, yet the artistic bent of mind of the man of the period and his traditions are to some extent evident in them.

He was capable of drawing the figures in different sizes at the same time maintaining a sense of broad proportion in each case. The human figures in varried sizes are instances in this regard. Though the depictions of certain physical features such as fingers of the human beings, the udder of the cow etc. suggest the primitive stage of the paintings ; those of the broad chest, sturdy hands and thighs ; would speak of the ability and maturity of the man in bringing out them realistically.

Some degree of rhythm is also evident especially in the group-dance and in the way of depicting the horns, of animals. The last person at each end of the group dance, holds a distinct object in the free hand for balance. The long horns are gracefully shown as curved. Besides, the variations in the depictions of the horns are not simply the fanciful creations of the painter, but seem to indicate the different subspices of the animals. They have made them appear vigorous.

Lastly, the human beings and the animals are not static, but in action. The group dance, the moving horse-rider, the ferocity of the hunting, the fearful attitude of a man chased by a bear (Rock-painting No. 2) have been successfully brought out.

Thus, from the point of art, nevertheless the paintings in some respects are primitive, symbolic and vague in delineations, they are powerful and effective; factors that form the basic ingredients of true art.

Burial Practices

The most characteristic feature of the Society is the mode of burying the dead in the stone-built tombs or unlined pits. Of the various burial practices, post-excarnate, secondary, fractional, disarticulated, multiple burial was very common. Single, extended, articulated burial on a specially prepared lime or ash bed in the burial-pit and post-cremation burial, were rare.

Single, extended, articulated, secondary or primary burial on a lime or ash bed was prevalent among the neolithic people of the Deccan. Cremation was the moral practice of the Aryans. Banerjee (1965 : pp. 73-74) has already pointed out the references in the Rigveda to the two types of burials (Rigveda X : 15,14) : cremation and primary burial respectively called Agnidagdha and Anagnidagdha. Erection of stone or cairn stone circle over the remains of the dead, is also mentioned in the Rigveda

(X, 18, 4). Pit burials seem to have been referred to in the Rigveda as in 'Mrinmayam griham'. There is an appeal (X; 18,11) to the mother earth to rise up above him, to provide comfort and to cover the dead like a mother does to her child with her garment. The Vajasaneyi Samhita refers to the cremation and the Atharva Veda (V : 31,8, X, 1, 18) mention, the burial of the ashes of mortal remains in a cemetery.

It appears therefore that post-cremation burials referred to in the Vedic literature continued found in the megalithic period of this region might have been owing to a section of the society who practised it.

Thus the varied burial practices seem to suggest persistences of the different cultural practices of the earlier people and the incoming influences from the typical megalithic burial traditions.

The burial ceremonies involved interring of the collected bones after exposure or ash after cremation in the constructed tomb or pit, sometimes attended with animal sacrifices and provided with pottery vessels of daily use which occasionally are filled with cereals, iron utensils and implements and ornaments implying that the dead would need these in the life hereafter as he did before the death. The burial in a jar ooking like a pregnant woman seems to suggest the entering of the dead into the womb of the mother earth. (Logan, W ; 1887 : pp. 182-183).

The types of burial chambers are varied. They are : passage chamber the chamber being rectangular on plan, passage chamber of Greek or Latin Cross type, passage circular chambers and passage chambers of haxagonal plan, port-holed dolmenoid cist circles, chambers with or without port-hole, cist-circles, oblong cists or dolmenoid cists, pit-burials, round barrows, pit-circles etc. All these are sepulchral in function. These variations and the distribution pattern suggest development and diffusion of the different traditions of the various sections of the society and mutual influences.

The construction of these tombs particularly of the long barrows measuring 50 m. 1×25 m b×2.50 m involve a large number of people of different cadres such as stone cutter, builder, and a force of workers, for a considerable period. This implies that the society was well organised and perhaps a section of the community was mainly devoted to the construction of the tombs.

It appears from the pattern of the distribution of the tomb-types in any site, that the community consisted of different classes of people. Whether these classes were graded is not apparent.

Religion

What were their religious beliefs and objects, only further work may disclose. However, the megalithic monument at Hunur (Sundara ; 1971e : pp. 97-102) and the imposing altar(?) in Motebennur, seem to be suggestive of their religious character. Similarly, the rude stone anthropomorphic figure at Aihole probably of the megalithic association seems to be a cult object. But the nature and the character of the religion are not evident from them.

People

The people were good horse-riders as evident from a number of horse-riders

depicted in the rock-paintings. Outside North Karnataka, horse bits (Ramachandran, K.S. ; 1961 : pp. 170-172) were recovered from many of the excavated megaliths.

Cultural Contacts

When megalith builders appeared in the Krishna-Tungabhadra valley, the valley was densely inhabited by the chalcolithic/neolithic people. Owing to their contacts, each was culturally influenced by the other.

The excavations at particularly Brahmagiri and also at Sanganakallu, Hallur, T. Narasipura have clearly and substantially exhibited the overlap of the Iron Age Megalithic culture with the earlier neolithic culture in the chalcolithic stage immediately after the intrusion of the chalcolithic culture of the Godavari valley into the neolithic culture of the Krishna-Tungabhadra valley. In the first site, the assemblage of the chalcolithic black-on-red painted jar of evidently Jorwe fabric typical of the chalcolithic culture of the Godavari valley and the megalithic black-and-red ware bowls etc. from the pit B earlier in time than the cist VI the neolithic grey ware urn-burial typical of the culture of the site, covered with megalithic black-and-red ware found in the overlap phase at Hallur are undoubtedly distinct evidences of the mutual contacts of the cultures.

The contacts had in course of time resulted : in ending the Stone Age ; in the development of the local types of megaliths such as round barrows, pit-burials, pit-circles, oblong cist-circles etc., and in the mutual influences on certain practices and material equipments.

The development of the local megalithic types is already discussed above. Now, let us try to note the extent of the mutual influences : first on the chalcolithic or the neolithic in the chalcolithic stage and then on the megalith-builders.

The excavations have revealed that the practice of burying the dead within the habitation area was prevalent among the neolithic people and the burials were of the simple pit-burial type or urn-burial type or double-pot burial type. This practice during the overlap stage and the Iron Age megalithic stage (especially as at Maski) was chaged over to that of burying the dead away from the habition area. As evident from the excavated round barrow at Terdal the chalcolithic people began the practice of raising cairn packing over the burials leading to development of round barrows. The simple burial types were developed into pit-circles (as at Brahmagiri) and stone-circles, cairn circles as at Maski etc.

They began to use the black-and-red ware mostly of the megalithic fabric along with their usual pottery i.e. grey ware urn with flaring rim as evident from the burials of Brahmagiri and Hallur, from the possibly disturbed burials in the neolithic/chalcolithic sites at Kallur, Hirechal, Masali (kd) etc.

One of the modes of the secondary burials practised by the chalcolithic people of the Deccan is the double-pot burial found in vogue as far down as Hallur. The double pot in the megalithic pit-burial at Unachageri-Gaudageri described above but for the vertical position, indicates the survival of the earlier chalcolithic tradition.

On the other hand, practice of having graffiti marks on the pottery prevalent among the chalcolithic people gradually was adopted by the megalith-builders. A

megalithic pot from Andhra Pradesh has post-firing engraved band of intelligible design of animals and stylized plants in broken lines on the shoulder (Gururaja Rao B.K. ; 1972 : illustration on the jacket) reminiscent of the similar painted design on the pot of the chalcolithic culture from Diamabad (IAR ; 1958-59).

Among the pottery, the huge coarse thick walled pyriform urn with applique chain design having curved ends and nipple like projections within the curved ends on the shoulder and mat impression on the narrow flat circular bottom was considerably frequently used for the burial by the chalcolithic people as found for instance in the burial at Tekwada (IAR; 1957-58) the four pot burial found at Nevasa and Tekkalakota. This type of urn seems to have been preferred by the Megalith builders in course of time. One of the megalithic port-holed cist burials in Managondanahalli yielded such urn (Pl. XXXI). Many of the megalithic urn-burials in Kerala and Tamil Nadu regions, were found to contain similar urns.

Racial Types of the Megalith-builders

At least three racial elements of the megalith-builders are well identified : autochthonous Australoid ; Proto-Australoid as Veddid type and a type similar to al 'Ubaid' type and Mesobrachy-cranial type of probably Scytho-Iranian stock not agreeing with either of the two types, who probably were basically megalith-builders and introduced megalithism in this region. It is the people of the last type that appeared for the first time with the practice of raising rude stone chambers for ceremoniously burying the skeletal remains after exposure of the dead among them. Hence it is most probably these people that began the megalithic tradition in this region in particular and in South India in general. Though they are racially comparable to the people of the Scytho-Iranian stock, there are now, at present, sound, unambiguous, and substantial evidences to prove that the former originated from the latter. It is sensible at the moment to presume that both had probably common source that is yet to be known.

Origin, Diffusion and Date of Megalithism

Of all the megalithic chamber tomb types of North Karnataka may, South India it is the passage chamber found distinctly and largely in the former area that has fundamental resemblances with that of the Mediterranean and the Western Europe. This type is not so far reported from the Iranian and Baluch-Makran area or from North India. Moreover, this type and also an account of the impact its builders had on the local people in the neolithic/chalcolithic stage ultimately gave rise to the other chief megalithic burial types of South India. It appears therefore that the South Indian Megalithism was derived from the Mediterranean region via the Coastal Route. Into this megalithic culture at a very late stage there was perhaps an intrusion of another megalithic strain of different sort represented by the stone alignments from North India in the north-eastern part of Karnataka and the northern part of Andhra Pradesh.

The megalithic culture began from about 1200-1100 B.C., flourished upto about 3rd-2nd c. B.C. and survived upto circa 1 c. B.C. in North Karnataka.

MEGALITHIC SITES OF NORTH KARNATAKA : A LIST

I : Megaliths in the Zone of the Kaladgi Series

1. Harli (Bk) and (Kd)*. 2. Ainapur*. 3. Hattargi*. 4. Dadamarhatti*. 5. Jinral*. 6. Hunur*. 7. Nirvanhatti*. 8. Nadigudiketar*. 9. Badkundri* 10. Hidakal*. 11. Sultanpur*. 12. Ghodageri*. 13. Konnur. 14. Savalgi*. 15 Godchinmalki*. 16. Sigiholi*. 17. Urbanhatti*. 18. Kadihalli*. 19. Gumachimardi*. 20. Honnin-Mavanur*. 21. Kundargi. 22. Muchandi*. 23. Tallur*. 24. Sindogi. 25. Saundatti*. 26. Kallur*. 27. Kittur*. 28. Kurgovinkop*. 29. Terdal. 30. Halingali. 31. Madanamatti. 32. Asangi. 33. Hangandi. 34. Jagdal*. 35. Jaknur*. 36. Chingundi*. 37. Kaladgi*. 38. Sitimani. 39. Guledgudda. 40. Pattadakal. 41. Akargal*. 42. Aihole. 43. Kyaddigeri*. 44. Chilapur*. 45. Unachgeri-Gaudageri*. 46. Gajendragad*. 47. Rajur*. 48. Hirehal*.

II : Megaliths in the Zone of the Dharwar Rocks

49. Hire-Morab. 50. Gundagatti. 51. Hallihal. 52. Hoskatti. 53. Nagavand. 54. Kamalapur. 55. Tadakanhalli. 56. Kanvi Sidgeri. 57. Chatnahalli. (Locally called Bhairavanpada). 58. Hallur. 59. Sidenur. 60. Motebennur. 61. Budapanhalli. 62. Hadargeri. 63. Udgatti. 64. Kuskur. 65. Kunbev. 66. Kadarmandalgi. 67. Byadgi. 68. Bidarkatti. 69. Tadas. 70. Chinnikatti. 71. Kervadi. 72. Chavadanpur*. 73. Galaganath*. 74. Agadi. 75. Tangadu. 76. Belgatti. 77. Jyalawadgi. 78. Bagewadi. 79. Kalkeri. 80. Belhatti. 81. Hosur. 82. Devihal. 83. Sogival. 84. Adrahalli. 85.Kuruvatti. 86. Kotihal. 87. Malkanhalli. 88. Mudenur. 89. Kamdod. 90. Ukkund. 91. Asundi. 92. Telgi. 93. Neelgunda. 94. Rajawalam. 95. Timmalapuram.

III : Megaliths in the Zone of the Bhima Series

96. Budihal. 97. Talikot.* 98. Maskanal. 99. Salvadgi*. 100. Bandapanhalli (Mentioned as Matakandevanhalli in the Toposheet No. 56 D/7. 101. Banhatti. 102. Mallur. 103. Hagaratgi. 104. Kaldevanhalli* 105. Karkanhal. 106. Donkamadu. 107. Yerkanhal. 108. Maranhal. 109. Kodekal. 110. Hanamsagar. 111. Jamalpur. 112. Kanmatti. 113. Budihal. 114. Rajankolur. 115. Belsettihal. 116. Diamanhal. 117. Halbhavi. 118. Devatkal. 119. Hunasgi. 120. Bachmatti. 121. Chikanhalli. 122. Hebbal. 123. Anandapur. 124. Devapur. 125. Kalhalli. 126. Rachanpalli. 127. Gurmatkal. 128. Sugurthihalli. 129. Ijeri. 130. Nellogi.

Note : The site/s in the locality marked with an asterisk was/were discovered by the author.

131. Mandewal. 132. Kalhangargi. 133. Chinnalli. 134. Hagargundgi. 135. Kolkur. 136. Jewargi (Bk). 137. Jewargi (Kd). 138. Andola. 139. Kamarwadi. 140. Chitapur. 141. Korla. 142. Ekmai. 143. Ravur. 144. Shahabad. 145. Beghwadi.

IV : MEGALITHS IN THE ZONE OF THE PENINSULAR GNEISSIC COMPLEX

146. Katapur. 147. Billamarayana Gudda. 148. Advibhavi. 149. Huligund. 150. Mudgal. 151. Piklihal. 152. Gugalmari.* 153. Tawargeri.* 154. Matbal. 155. Venkatapur. 156. Maski. 157. Watgal. 158. Kurkundi. 159. Timapur. 160. Kallur. 161. Kardigudda*. 162. Sadapur. 163. Gorkal*. 164. Khanapur. 165. Valkandinne. 166. Kamalhatti. 167. Harnahalli. 168. Kurvi. 169. Duddal. 170. Rajalabanda*. 171. Jukur. 172. Kataknur. 173. Gutbichal. 174. Mushtoor. 175. Yabbal. 176. Anegondi. 177. Mallapur. 178. Hire-Benkal. 179. Chik-Benkal. 180. Agoli. 181. Indurgi. 182. Bilebhavi. 183. Shivapuram. 184. Hampasagar. 185. Koppal. (Kopbal as mentioned in the Topo-sheet No. 48 M/SE.) 186. Halasargaum. 187. Sandur. 188. Rayapuram. 189. Sirivaram. 190. Sanganakallu. 191. Bellary. 192. Karianegudda. 193. Bhairapur. 194. Tintni. 195. Balchakra. 196. Tadbidi*. 197. Rakhamgeri. 198. Mandapur.* 199. Vibhutihalli. 200. Shakapur. 201. Mallabad. 202. Wadageri.

V : MEGALITHS IN THE ZONE OF THE DECCAN TRAP

203. Kallol*. 204. Eksambe*. 205. Sadalaga.* 206. Kudachi*. 207. Masali (Kd)*. 208. Ingalgi*. 209. Hingani*. 210. Chik Manuur.* 211. Hire Bevanur.* 212. Madnahalli*. 213. Kumashi*. 214. Ganagapur. 215. Mahagaon. 216. Sulphet. 217. Pet-Sirur.

Locations of the Sites

Nos. 1, 2, Gad-Hinglaj Tk; Kolhapur Dist. 3-12, Hukkeri Tk; 13-21, Gokak Tk; 22, Belgaum Tk ; 23-25, Saundatti Tk ; 26-27, Ramdurg Tk ; all in Belgaum Dist. 28, Nargund Tk ; Dharwar Dist. 29-36, Jamkhandi Tk ; 37, 38, Bagalkot Tk ; 39, Hungund Tk ; 40, 41, Badami Tk ; 42-44, Hungund Tk ; all in Bijapur Dist. 45-48, Ron Tk ; 49-58, Hire Kerur Tk ; 59, 60, Byadgi Tk ; 61-65, Ranebennur Tk ; 66-71, Byadgi Tk ; 72, Ranebennur Tk ; 73-74, Haveri Tk ; 75-84, Shirahatti Tk ; all in Dharwar Dist. 85, Harapanahalli Tk ; Bellary Dist. 86-91, Ranebennur Tk ; Dharwar Dist. 92, 93, Harapanahalli Tk ; 94, 95, Hadagali Tk ; Bellary Dist. 96-100, Muddebihal Tk ; Bijapur Dist. 101-103, Shorapur Tk ; Gulbarga Dist. 104, Muddebihal Tk ; Bijapur Dist. 105-124, Shorapur Tk ; 125-127, Yadgir Tk ; 128-138, Jewargi Tk ; 139-140, Chitapur Tk ; 141-143, Sedam Tk ; 144-145, Chitapur Tk ; all. in Gulbarga Dist. 146-151, Lingsugur Tk ; Raichur Dist. 152, Hungund Tk ; Bijapur Dist. 153, Lingsugur Tk ; 154-156, Maski Tk ; 157, 158, Manvi Tk ; 159, 160, Raichur Tk ; 161-173, Manvi Tk ; 174-183, Gangawati Tk ; all in Raichur Dist. 184, Hadagali Tk ; Bellary Dist. 185, Koppal Tk ; Raichur Dist. 186, Harapanahalli Tk ; 187, Sandur Tk ; 188, Kudligi Tk ; 189-191, Bellary Tk ; Bellary Dist. 192-194, Shorapur Tk ; 195, Yadgir Tk ; 196-202, Shahapur Tk ; Gulbarga Dist. 203, 204, and 205, Chikkodi Tk ; 206, Rayabhag Tk ; Belgaum Dist. 207-211, Indi Tk ;

212, 213, Sindgi Tk; Bijapur Dist. 214, Afzalpur Tk ; 215, Aland Tk ; 216, 217, Chincholi Tk ; Gulbarga Dist.

NOTE :

i) *Sites with Neolithic (N)/Chalcolithic (C), Megalithic (Mg), Early Historical (H) Habitational Remains Near the Burials*

13 (N with ash mound), 23 (Mg. and H), 26-28, (N with Mg. pottery and no burials are noticed nearby) 34 (C and Mg. pottery only, no burials are noticed), 46 (Mg.), 48 (N and H with sprinkling of Mg. pottery), 54 (N and Mg.), 72 (N, Mg. and H), 73 (Mg. and H), 97 (H), 99 (N and H), 113 (N with two ash mounds), 119 (N), 136 (H with probably Mg.), 152 (N), 153 (N and H with rock-bruisings), 155 (N and Mg. with an ash mound and a rock-painting), 161 (N, Mg. and H), 163 (N, Mg. and H), 170 (N, Mg. H), 178 (N, Mg and H), 163 (N, Mg and H with remains of an ash mound), 197 and 99 (Mg), 203 and 206, 207-213 (C with megalithic pottery).

ii) *Sites with Iron Smelting Remains*

40 (and in Adgal nearby), 41 (near Rangasamudra), 42 (near Kamatgi) 53, 76, 152 (two), 153 (two), 158, 159, 160, 190.

iii) *Sites with Ancient Gold Workings* : 42 (near Kellur) 76-84, 156.

DESCRIPTION OF PLATES AND FIGURES

(PLATES)

A. PASSAGE CHAMBERS OF THE KONNUR TYPE

Plate I: 1, 2 : Long barrows containing passage chambers at Ghodageri and Nirvana-hatti. 3 and 5. Konnur. Side and front views of a Passage Chamber. 4. Goda-chinmalki: Note the capstones covering both the chamber and the passage and being flush with the enclosing cairn packing.

Plate II : 1 Konnur, 2 and 3. Godachinmalki. 4. Kyaddigeri. Note the rectangles and the circles enclosing the cairn packing, respectively of 1, 2 and 3, 4. The circle of 3 is of roughly dressed laterite blocks.

Plate III : 1, 2: Sindhogi : In 1, note the inner circle and outer rectangle enclosing the cairn packing. 3. Konnur : The long passage is noteworthy. 4. Hunnur: Tomb No. 2. The rectangular facade to the passage is of note.

Plate IV: 1, 2 : Hunnur : The excavated long barrow with two passage chambers. The chambers are together enclosed in rectangles. No. 2 shows the circular roughly coursed cairn packing to the chamber.

Plate V : Hunnur : Pot-burials exposed in the cairn packing of the excavated long barrow.

Plate VI : 1, 4 : Godachinmalki : In 1, the passage is unusually at the corner. In 4, the small cist is covered with a capstone. 2. Hidkal : A small cist. 3. Saun-datti : The aberrant type of passage chamber.

B. PASSAGE CHAMBER OF THE KONNUR TYPE : SUB-TYPE

(Greek or Latin Cross and Passage Circle Types)

Plate VII : 1-3 : Halingali. No. 4. Hanagandi. 1 and 3 are circular passage chambers with three pillars within supporting the capstone. The latter is enclosed in a circle. 2 and 4 are Latin Cross-type passage chambers (Same as in Fig. 3 ; 2 and Fig. 4 ; 2). The arrangement of multiple capstones of the former and the pillars supporting the capstones in the latter are noteworthy.

Plate VIII : 1 (Same as Fig. 8 ; 1) 2 and 4. Terdal : Excavated circular passage chamber (Mg. I) 1. Before the excavation. The circular passage chamber is enclosed first in a circle, which in turn is enclosed in an irregular rectangle. No. 2 shows the megalith during the excavation. No. 4 is the door slab closing across the

opening of the passage, from the interior. It is without port-hole and is set upright on earth and rubble packing. 3. Halingali : A small passage chamber of Latin Cross type, without pillars.

Plate IX : 1,2 and 3 : Halingali : Iron pan (1) and pottery objects (2,3) found in the excavated passage chamber (Mg III) of Latin Cross type (See Plate X and Fig, 11). 4 and 5. Terdal: Passage chamber of Greek Cross type (Mg II) during and after the excavation (Same as Fig. 9). 4 is the complete general view of the megalith including the enclosing rectangle. 5 is the close view of the chamber after the excavation.

Plate X : 1 to 5 Halingali : Passage chamber of Latin Cross type (Mg III) during the excavation (Same as Fig. 11). 1 is the complete general view of the Mg 2 shows the partly exposed exterior of the enclosing coursed rectangle and the overflowing cairn packing. 3 and 4 show the alignment of the pillars in the east-west and north-south axes respectively. 5 shows the two upright slabs without port-hole one on the other closing across the opening of the passage.

Plate XI : 1 and 2. Halingali : excavated Mg. III, the front and the rear views. Note in 1, the door slab without port-hole closing the passage opening. In both, the dry masonry and the rare cyclopean (unlike the usual orthostatic) character of the tomb, are of note.

C. CHAMBER TOMBS OF THE KALADGI TYPE

Plate XII : 1,2,3,4. Kaladgi : 1 is the typical sub-type of the Kaladgi type. In 2 the horn like projections at the opening of the passage and on the outer side of the circle. In 3 the enclosing rectangle and the semi-circular enclosure on the outerside of the rectangle (Same as Fig. 14 ; 5, 2) and in 4 the gap in the circle and cut-up of the top-corners of the stones flanking the gap, are noteworthy.

Plate XIII : 1,2 and 3. Halingali : 1 and 3 Cairn Stone Circle (Mg II. Same as Fig. 12 ; 2) before and after excavation. 2. Cairn Stone Circle (Mg I Same as Fig. 12,1) after excavation.

D. PORT-HOLED CHAMBERS OF THE RAJANKOLUR TYPE

4. Aihole: A Chamber tomb.

Plate XIV : 1-4. Aihole : 1 shows the thin cairn packing, the slanting orthostatic wall enclosing the packing and resting against the capstone and the semi-ovalish profile of the megalith. In 2, the two chambers have port-holes looking different directions. 3 shows the two views of a very big chamber in the site. 4 is stone cut symbolic anthropomorphic figure lying flat near a chamber tomb; probably an object of worship.

Plate XV : 1, 2, Pattadakal : Port-holed chamber of granite-gneiss, front and rear views. The port-hole, a large rectangular entrance, is in the transverse orthostat dividing the chamber into two compartments. The slab fallen flat in the foreground of 1, is the capstone of the fallen compartment. Note the thickness of the slabs and the rough dressing of the edge of the capstone.

3. Akkaragal: a dilapidated chamber of granite-gneiss.

Plate XVI : 1-3. Rajankolur : 1. General view of the site. 2, 3. Port-holed chambers. Note the varying size of the holes. All the chambers are of shaly sand stone.

Plate XVII : 1, 5 Rajankolur. 1, 3, Chamber tombs of varying sizes. 4,5, Oblong cists of different sizes.

E. Port-holed Chamber of the Aihole Type

Plate XVIII : 1-3 Aihole : Three views of a port-holed chamber. They show a door slab closing the port-hole and the short front passage. Note the U Shaped of port-hole (Same as Fig. 16;4).

Plate XIX : 1. Hagaratgi: Passage chamber. Note the cut front top corners of the passage.

F. Cairn Stone Circles and Cists

2. Jewargi : Oblong-cist (Probably under an oblong barrow which is disturbed). 3. Piklihal : Cairn stone circle with an evaloid enclosure (of granite-gneiss) 4. Jewargi : a cairn stone circle.

G. Chamber Tombs of the Hire Benkal Type

Plate XX: 1-4. Hire Benkal : 1. General view of a part of the site. 2-4. Chamber tombs of different sizes.

Plate XXI: 1-3. Hire Benkal : 1. Note the big door slab closing the port-hole. 2,3. Two views of a chamber tomb showing the orthostatic wall enclosing it. The port-hole is covered with the tallest L-shaped orthostat. Its dressed edges and the curved angle are peculiar and noteworthy.

Plate XXII : 1-3. Hire-Benkal. 1. The coursed dry masonry wall encircling the chamber is of note.

H. Chamber Tombs of the Brahmagiri Type

1,2. The chamber tomb has an east-oriented passage leading to the port-hole and the disturbed cairn packing and circle. 3. General view of a part of the site with port-holed chambers. Note the uniform size of the chambers.

I. Oblong Cists

Plate XXIII: 1-4. Hire-Benkal: 1. General view of a part of the site with oblong cists. 2. An oblong cist 3, 4. Oblong cists sub-divided into two or more compartments. In 3 each compartment has a separate port-hole, which are distorted by treasure-hunters.

J. Rock-Shelters and Polygonal Chambers

Plate XXIV : 1-4. Hire Benkal: 1. General view of a part of the site with rock-shelters and polygonal chambers. 2 and 4. Irregularly polygonal chambers. 3. A rock-shelter.

K. Pit-Burials and Stone Circles

Plate XXV : 1,2, and 4. Gaudageri-Unachgeri : 1. General view of the pit-burials along the channel track at the foot of the hill. 2. One of the partly disturbed burial (Megalith 1) after clearance. 4. A disturbed pit-burial exposed in the section of the track. 3. Rajur : A vertically set double pot-burial partly disturbed ; before/after clearance. (Megalith 2).

Plate XXVI: 1. Watgal : Double stone circle. 2. Gorka : a pit-burial after clearance. 3. Guledgudda: pottery from a disturbed round barrow.

Plate XXVII: Tallur: 21 perforated conch-shells from a disturbed round barrow. Probably, suggested by the perforations, they formed a necklace used by a priest during his rituals.

L. STONE ALIGNMENTS AND MENHIRS

Plate XXVIII : 1. Vibhutihalli : General view of the site with stone alignment. 2, 3, Nilaskal : A menhir and general view of a part of the site with menhirs.

M. MEGALITHIC MONUMENTS

Plate XXIX: 1. Mote Bennur: An imposing orthostatic megalithic chamber 2-4. Hunnur: Different views of a cyclopean megalithic monument with an entrance. An oval-shaped stone enclosure is beside it (4). Both are probably non-sepulchral and of ritualistic significance.

N. ASH MOUND AND CUT STONES

Plate XXX: 1,3. Kudachi; General and close views of an ash mound in a chalcolithic site.

2. Hunasgi : A well cut block of conglomerate from a disturbed megalithic circle. 4. Bandapanahalli : Finely dressed side of a well cut block of limestone from a disturbed megalithic circle.

Plate XXXI : 2, 4. Managondanahalli. Pyriform Jar with applique design on the shoulder (2) and mat impression on the bottom (4). 1. General view of the site with menhirs. 3. A menhir forming a part of cist.

FIGURES

Figure 1. Geological map of North Karnataka showing distribution of the megalithic types.

Figure 2. Map of North Karnataka showing the locations of the megalithic sites.

Figure 3. 1. Terdal : long barrow with three equidistant passage chambers of the Latin Cross type. Note the double rectangles at the edge of the long barrow.

2. Halingali : Passage chamber of the Latin Cross type. Note the arrangement of the multiple capstones and its elevation (Same as Plate VII ; 2).

Figure 4. 1. Halingali and 2. Hanagandi : Passage chambers of the Latin Cross type. The pillars and their alignment inside the chamber and the enclosing circle and rectangle in 1 and the semi-circular enclosure with passage in alignment with the passage in 2 are noteworthy.

Figure 5. 1 and 2 Halingali : 1. Passage chamber of the Konnur type. In 2, the series of the capstones, now lying across the enclosing rectangle owing to disturbance by treasure-hunters, must have originally been lying on the central capstone supported by the four pillars underneath at one end and on the rectangle at the other.

Figure 6. 1, 2 and 3. Halingali : Passage chambers of the Konnur type enclosed in circle. The three pillars inside the chamber and the rectangular enclosure on the outside of the circle in 1 and the passage to the side of the chamber in 3 are noteworthy.

Figure 7. 1, 2 and 3 : Small cist-circles. Note in 1 the small cists on the outside of the cist-circle, each is again being enclosed in a separate circle.

Figure 8. 1 Terdal : Passage circle with pillars, enclosed in a circle and a rectangle before excavation (Mg I. Plate VIII, 1). 2. Halingali. Passage circle enclosed in a rectangle. The radial arrangement of the multiple capstones is particularly noteworthy.

Figure 9. 1 and 2. Terdal : Passage chamber of the Greek Cross type (Mg II) before and after excavation (Plate IX ; 4, 5).

Figure 10. 1 and 2. Terdal : Cross-sections of the excavated megaliths I and II.

Figure 11. Halingali : A passage chamber of the Latin Cross type with pillars (Mg III) during evcavation and its cross-sections with and after the removal of the debris (Plates X and XI).

Figure 12. 1 and 2. Halingali : Cairn Stone circles (Mgs I and II) before excavations and their cross-sections during the excavations.

Figure 13. Kaladgi : Site plan of the megalithic site.

Figure 14. 1-6. Kaladgi : Individual plans of the representative chamber tombs. Note the enclosing double lined rectangle in 1, the semi-circular enclosure on outside the rectangle in 2, the division of the chamber into two sub-compartments in 3, the horn like projection stones on the outside of the circle in 5 and the enclosing circle and the rectangle and the cut-top corner edges of the blocks flanking the gap in the circle in 6 are noteworthy (Plate XII).

Figure 15. Aihole and Kyaddigeri : Site plan of the megalithic site.

Figure 16. 1, 2 and 3. Kyaddigeri : 1. Two double circles enclosed in oval-shaped enclosure constructed in the middle. The double circle on the north seems to enclose a south-oriented passage circle.

2. A small square chamber without capstone. 3. A passage chamber of the Konnur type enclosed in a circle.

4. Aihole : Passage chamber of the Aihole type (Plate XVIII).

Figure 17. Halingali : Pottery types from the excavated Mg III.

Figure 18. Pottery types from the disturbed passage chambers of the Konnur type and a round barrow (7).

Figure 19. I. 1 Rajur. 2. Hingani. 3-5. Gaudageri-Unachageri : Iron objects, II. 1-8 Iron objects and 9 a copper object from the excavated Mg III at Halingali.

Figure 20. I. Megalithic pottery types from different chalcolithic sites in the Bhima valley.

II. Megalithic pottery types from Hingani chalcolithic site.

Figure 21. Contour plan of the Megalithic site in Terdal-Halingali showing the locations of the excavated megaliths.

ABBREVIATIONS

(Used in Bibliography)

AI	=	Ancient India.
AIHC & A	=	Ancient Indian History, Culture and Archaeology.
ARASMC	=	Annual Report of the Archaeological Survey of Madras and Coorg.
ARDAH	=	Annual Report of the Archaeological Deptt. of H.E.H. The Nizam's Dominions, Hyderabad.
ARKRBK	=	Annual Report of the Kannada Research in Bombay, Karnataka, Dharwar.
ARMAD	=	Annual Report of Mysore Archaeological Deptt.
ARTC	=	Annual Report of the Archaeological Deptt., Travancore-Cochin State.
BDCRI	=	Bulletin of the Deccan College Post-Graduate & Research Institute, Poona.
BHU	=	Banaras Hindu University.
BIAS	=	Bulletin of Indian Archaeological Society.
IA	=	Indian Antiquity.
IAR	=	Indian Archaeology : A Review, New Delhi.
ICAA	=	International Conference on Asian Archaeology.
JASB	=	Journ. of the Asiatic Society of Bengal.
JHAS	=	Journ. of the Hyderabad Geological Survey.
JKUS	=	Journ. of the Karnataka University, (Social Sciences).
Journ.	=	Journal.
MASI	=	Memoirs of the Archaeological Survey of India.
MJLS	=	Madras Journal of Literature and Science.
PASB	=	Proceedings of the Asiatic Society of Bengal.
Proc.	=	Proceedings.
QJMS	=	Quarterly Journal of the Mythic Society, Bangalore.
RASI	=	Report of the Archaeological Survey of India.
RBAST	=	Report of the British Association for Advancement of Science Transactions.
RSMP	=	Report of the working of the State Museum, Pudukkottai.

BIBLIOGRAPHY

1. Aiyappan, A; 1940-41 : "Rude Stone Monuments of the Perumal Hills-Kodaikanal", *QJMS*, Vol. XXXI, pp. 373-379.
2. Alexander, Rea; 1880 : "Some Prehistoric Burial Places in South India" *JASB*, Vol. LVII, pp. 48-71.
3. ———; 1903-4 : "Tindivanam" *ARASMC*, pp. 54-55.
4. ———; 1915—*Catalogue of the Prehistoric Antiquities from Adichanallur and Perumbair*, Madras.
5. Allchin, F. R.; 1955 : "Archaeological Sites in the Benkal Forest, Hyderabad", *Man*, Vol. LV, pp. 97-99.
6. ———; 1956 : "The Stone Alignment of Southern Hyderabad" *Man*, Vol. LVI, No. 150, pp. 133-136.
7. ———; 1960 : *Piklihal Excavations*, Andhra Pradesh Archaeological Series, No. 5, Hyderabad.
8. ———; 1962 : "Upon the Antiquity and Methods of Gold Mining in Ancient India" *Journ. of Economic and Social History of the Orient*, Vol. V, Pt. II, pp. 194-211.
9. Anglade, A ; and Newton, Rev. 1928 : "The Dolmens of Pulni Hills", *MASI*, No. 36, pp. 1-18.
10. Annigeri; 1958 : "Archaeological Sites in Old Bombay-Karnataka and the adjoining Area." *ARKRBK*, for 1953-57, Dharwar, pp. 41-46.
11. ARDAH; 1915-16 ; 1916-17 ;
1927-28 ; 1930-31 ;
1933-34 ; 1934-35 ;
1935-36 ; 1936-37 ;
1938-39 ; 1939-40 ;
1940-41 :
12. *ARKRBK*; *for 1939-40, Dharwar.*
13. *ARKRBK*; *for 1941-46.*
14. *ARKRBK*; (*1947-52*); 1953, Dharwar.
15. ARKRBK; for 1953-57, Dharwar.

16. ARMAD; 1947-56.

17. Babington, J. ; 1823 : "Descriptions of the Pandoo Coolies in Malabar" *Transactions of Literary Society of Bombay*, Vol. III, pp. 324-330.

18. Banerjee, N.R.; 1954-55 : Excavations in Amirthamangalam, District Chingleput". *IAR*; pp. 20-21.

19. ————; 1956 : "The Megalith Problem of Chingleput in the light of recent Exploration," *AI*, No. 12, pp. 21-34.

20. ————; 1956a "The Excavations at Sengemedu", *The March of India*, pp. 43-46.

21. Banerjee N.R. and Soundara Rajan, K.V. ; 1959: "Sanur 1950-1952 : A Megalithic Site in District Chingleput" *AI*, No. 15, pp. 4-42.

22. Banerjee, N.R. ; 1961 : "The Chronology of Megaliths in South India : A Review", *ICAA*, *Summaries of Papers*, pp. 26-28.

23. ————; 1962 : "Megalith Builders of South India were Dravidian Speakers : A Review," *Transactions of the Archaeological Society of South India* (Silver Jubilee Volume), pp. 180-189.

24. ————; 1965 : *The Iron Age in India*, New Delhi.

25. ————; 1966: "The Megalithic Problem of India". *Studies in Prehistory*, Ed. by Sen & Ghosh.

26. Beck, Horace; 1930 : "Beads from Megalithic Tombs and Midden in Sulur Taluka and Neighbouring Districts" *Man*, Vol. XXX No. 139.

27. Bibby, T.; 1961 : "Bronze Age Cultures of the Persian Gulf in the Light of Recent Excavations", *ICAA*, *Summaries of Papers*, pp. 28-30.

28. ————; 1962 : *Four Thousand Years Ago*, London & Glasgo.

29. Boswell, J.A.; 1872 : "On the Ancient Remains in the Krishna District : Scythic Remains of Sepulchre", *IA*, Vol. I, pp. 150-51.

30. Branfill, B. R. ; 1880 : "Rude Megalithic Monuments in North Arcot", *JASB*, Vol. XLIX. pp. 8-10.

31. ————; 1881: "On the Savanadurga Rude Stone Cemetery Central Maisur," *IA*, Vol. X, pp. 1-12.

32. Breeks, J. W.; 1837 : *An Account of the Primitive Tribes and Monuments of the Nilgiris*.

33. Burgess, Jas; 1874 : "The Dolmens at Konnur and Aihole", *IA*, Vol. III, pp. 306-308.

34. Burrow, T.; 1954 : *The Sanskrit Language*, London.

35. Cammiade, L.A. ; 1930 : "Tangal, Chingleput District, Madras," *Man*, Vol, XXX, No. 136.

36. Campbell, J. M.; 1884 : *Gazetteer of the Bombay Presidency*, Belgaum, Vol. XXI.

37. ————; 1886 : *Gazetteer of the Bombay Presidency*, Kolhapur, Vol. XXIV.

38. Carlleyle ; 1874 : "Report of the Year 1871-72 : Agra," *RASI*, Vol. IV, p. 214.

39. ———; 1878 : "A Tour in Eastern Rajputana in 1871-72 and 1872-73", *RASI*, Vol. VI, pp. 13-108.

40. Casal, J. M. and Casal, G. ; 1956 : *Site Urbain et Sites Funeraires Des Enviorns De Pondichery*, Paris.

41. Childe, Gordon, V. ; 1941 : "Megaliths" *AI*, No. 5, pp. 5-13.

42. ———; 1957 : *The Dawn of European Civilization*, London.

43. Codrington, K.; De., B.;1930 : "Indian Cairn and Urn Burials", *Man*, Vol. XXX, No. 139.

44. Cole, R.A. ; 1868 : "On the Cromlechs in Coorg" *PASB*, pp. 151-55.

45. ———; "On the Discovery of Cromlechs in Coorg" *PASB*, pp. 243-245.

46. ———; 1869 : "Memorandum on the Cromlechs Found in Coorg", *PASB*, pp. 54-59 and 184-186.

47. Congreve, H.; 1873 : "Cromlechs", *IA*, Vol. II, pp. 86-88.

48. ———; 1844 : "Some Observations on a Remarkable Cromlech Near Pulicondah in the Carnatic," *MJLS*, Vol. XIII, pp. 47-51.

49. ———; 1861 : "Remarks on the Druidic Antiquities of South India," *MJLS*, Vol. XXII, pp. 205-211.

50. ———; 1878 : "On Druidical and Other Antiquities between Mattapoliam in Coimbatore and Kurnool on the Tungabhadra," *MJLS*, Vol. XXIV, pp. 150-168.

51. Cornelius, J. T., 1966 : "The Graffiti on the Megalithic Pottery of South India and Dravidian Origin," *Tamil Culture*, No. 4, pp. 287-301.

52. Cousens, H.; 1926: *The Chalukyan Architecture*, Archaeological Survey of India, Vol. XLII, New Imperial Series, pp. 128-129.

53. Daniel, Glyn ; 1950 : *The Prehistoric Chambers of England and Wales*, Cambridge.

54. ———; 1963 : *The Megalith Builders of Western Europe*, Pelican Book Series.

55. ———; 1963a : *The Hungry Archaeologist in France*, London.

56. Dart, R. A. and Beamont; 1969 : "Evidence of Iron Ore Mining in Southern Africa in the Middle Stone Age," *Current Anthropology*, Vol. 10, No. I, pp. 126-127.

57. Davison Dorothy ; 1951 : *The Story of Prehistoric Civilization*, London.

58. Deo, S.B. et. al.; 1965 : *Chalcolithic Chandoli*, Poona.

59. Deo, S.B.; 1968 : *Paunar Excavations*, Nagpur.

60. Deo, S.B.; 1968 : "Megaliths in Maharashtra" A paper read in the seminar on *The Problems of Megaliths in India*, Feb. '68, under the auspices of the Deptt. of AIHC & A, BHU, Varanasi.

61. ———; 1970 : *Excavations at Takalghat and Kapa*, Nagpur University, Nagpur.

62. ———; 1973 : *Problem of South India Megaliths*, Karnataka University, Dharwar.

63. Deptt. of Mines and Geology, Govt. of Karnataka ; 1960-61 : *Survey of Iron Ores in Mysore State* (Unpublished Report).

64. De Terra, H. ; 1936 : "Excavations at Burjhama," *Miscellany of the American Philosophical Society*.

65. Dhavalikar, M. K.; 1968 : "A Plough Coulter from Brahmagiri-India," *Antiquity*, Vol. XLII, pp. 137-138.

66. Dhikshit, K.N. (Rao Bahadur) ; 1943: "Presidential Address" *Proc. of the Indian History Congress*, VI Session.

67. Dikshit, K. N.; 1968 : "The Origin and Distribution of Megliths in India". A paper read in the seminar on *The Problems of Megaliths in India*, in Feb. '68 under the auspices of the Deptt. of AIHC&A BHU Varanasi.

68. Dikshit, M. G. ; 1968 : *Excavations at Kaundipura*, Bombay.

69. Elliot Smith, G. ; 1913 : "The Origin of the Dolmen", *Man*, pp. 193-195.

70. Elliot, W. ; 1886 : On the Sepulchral Remains of Southern India", *RBAST* pp. 134-135.

71. Facet Fred ; 1892 : "Prehistoric Rock-Pictures near Bellary", *Asiatic Quarterly Review*, New Series III, pp. 247-257.

72. Foote, R.B. ; 1916 : *The Foote Collection of Indian Prehistoric and Protohistoric Antiquities*, Notes on their Age and Distribution, Madras.

73. Frasen, William ; 1861 :"A Note on the Megalithic Burials in the Coimbatore District", *MJLS*, Vol. XXII, pp. 112-119.

74. Frere, H.B.E. ; 1853-57 : "Descriptive Notices of Antiquities Scinde" *Journ. of the Bombay Royal Asiatic Society*, Vol. V, pp. 349-369.

75. Garstin, J.H. ; 1876 : "Dolmens of the Coromondel Coast" *IA*, Vol. V, pp. 159-60.

Geography and Geology : Section of :

76. Gazetteer of the Bellary District ; Vol. I, 1916.

77. Gazetteer of the Bombay Presidency ; Vol. XXII, Bijapur Dist.

78. Gazetteer of the Bombay Presidency ; Vol. XXIII, Dharwar District, (Revised edition), 1959.

79. Gazetteer of the Bombay Presidency ; Vol. XV, North Kanara, 1965 (Revised).

80. "Geology of the Eastern Part of the Raichur Doab", *JHGS*, III, Pt. I, 1936, pp. 1-76.

81. "Geology of the Western Part of the Raichur Doab", *JHGS*, Vol. II, Pt. I, pp. 1-56.

82. "Geology of Parts of Surapur and Shahapur Talukas, Dist. Gulbarga", *JHGS*, Vol. IV, Pt. I, 1941.

83. "Geology of Tk. Yadgir, Dist. Gulbarga" *JHGS*, Vol. IV, Pt. I, 1941, pp. 162-188.

84. "Geology of Parts of the Dist. Mahbubnagar and Gulbarga", *JHGS*, Vol. IV, Pt. I.

85. Ghosh, B.K. ; 1952 : "The Aryan Problem" *The Vedic Age*, p. 203.

86. ——— ; 1958 : "The Origin of the Indo-Aryana", *The Cultural Heritage of India*, Vol. I, pp. 136-137.

87. Ghurye, G.S. ; 1926 : "Funerary Monuments of India", *Man in India*, Vol. VI, pp. 26-57, and 100-139.

88. ——— ; 1963 : "Egyptian Affinities of Indian Funerary Practices", *Anthropo-Sociological Papers*, Bombay, pp. 80-94.

89. Gowland ; "Dolmens and Burial Mounds in Japan" *Archaeology*, Vol. 55.

90. Gordon, D.H. ; 1955 : *The Prehistoric Background of Indian Culture*, Second Edition, Bombay, pp. 174-185.

91. Guha, B.S. ; 1944 : "Racial Elements in the Population", *Oxford Pamphlet on Indian Affairs*, No. 22.

92. Gupta, S.P. ; 1965 : Comments on the Cairn Burials of Baluchistan-Makran Region, Referred to in the "Iron Age in India" by Banerjee, N.R. in *Indian Prehistory*, 1964.

93. ——— ; 1972 : *Disposal of the Dead and Physical Types in Ancient India*, New Delhi.

94. Gururaj Bhatt, P. ; 1969 : *Antiquities of South Kanara.*

95. Guraraj Rao, B.K.; 1972 : *The Megalithic Culture in South India*, University of Mysore, Mysore.

96. Haimendorf, C ; 1943 : Megalithic Ritual among the Gadabas and Bondos of Orissa", *JASB*, Vol. IX, pp. 149-187.

97. ——— ; 1945 : The Problem of Megalithic Cultures in Middle India", *Man in India*, Vol. XXV, pp. 73-86.

98. ——— ; 1953 : "New Aspects of the Dravidian Problem", *Tamil Culture*, Vol. II, pp. 127-135.

99. Harding, H.O.D. ; 1889-90 : "Note on Some Old Graves in the Coimbatore District" *MJLS*, pp. 13-20.

100. Heine-Geldern ; 1959 : Das Megalith Problem, Beitrage Oesterreichs jur Erforachung der vergangenheit der Menschheit-, Symposion 1958, under the auspices of Wenner-Gren Foundation, New York.

101. Henshall, A.S. ; 1963 : *The Chamber Tombs of Scotland*, Vol. I, 1963, Edinburgh.

102. Heras Father, H. ; 1953 : *Studies in Proto-Indo-Mediterranean Culture*, Vol. 3.

103. Howard Crater ; 1963 : *The Tomb of Tut-Ankh-Amen*, New York, Vol. 2, LXXVII B and Vol. 3 Pl. LXX A.

104. Hunt, E.H. ; 1916 : "Hyderabad Cairns" *JHAS*, July, pp. 180-223.

105. ——— ; 1924 : "Hyderabad Cairns and their Significance" *Journ. of the*

Royal Anthropological Institute of Great Britain and Ireland, Vol. 54, pp. 140-156.

106. *Indian Archaeology : A Review* ; 1954-55 to 1967-68.
107. Itigatti, C.V. ; 1964 : "Mineral Resources of North Kanara District", *Mayoor*, Miscellany of the Arts and Science College, Sirsi, pp. 56-63.
108. James, E.O. ; *Prehistoric Religion.*
109. James Fergusson ; 1872 : *Rude Stone Monuments in All Countries : Their Ages and Uses.*
110. Joseph, T.K. ; 1928-30 : *Kerala Society Papers*, Vol. I, pp. 52-56.
111. Joshi, R.V. ; 1955 : *The Plesistocene Studies in the Malaprabha Basin*, Dharwar and Poona.
112. *JHGS* ; Vol. II, Pt. I ; 1934 : "Archaeological Finds" p. 36 ; pp. 76-82.
113. *JHGS* ; Vol. IV, 1941 : "Archaeological Finds" pp. 76-82.
114. *JHGS* ; Vol. IV, 1941 : "Archaeological Finds" pp. 53-54 ; pp. 85-89, pp. 156-161.
115. *JHGS*, Vol. VI ; 1947 : "Archaeological Finds" pp. 56-58.
116. Joyner, R.B. ; 1884 ; Notes on the Passage Chamber Tombs in Konnur in the *Gazetteer of Bombay Presidency*, Belgaum, Vol. XXI.
117. King, William ; 1877 : "Notice of a Prehistoric Burial Place with Cruciform Monoliths near Mungapet in the Nizam's Dominions", *JASB*, Vol. XLVI, pp. 179-185.
118. Krishna M.H. ; 1931 ; *Excavation at Chandravalli*, Bangalore.
119. ——— ; 1942 : "Excavations in Brahmagiri", *ARMAD* pp. 100-109.
120. Krishya Iyer ; 1929-30 ; "Prehistoric Archaeology in Kerala" *QJMS*, Vol. XX, pp. 115-126.
121. ——— ; 1967 : *Kerala Megaliths and their Builders*, University of Madras, Madras.
122. Krishaswamy ; 1949 : "Megalithic Types of South India" *AI*, No. 5, pp. 35-45.
123. Lal, B.B. ; 1951 : "Further Copper Hoards from the Gangetic Basin and a Review of the Problem", *AI*, No. 7, pp. 20-39.
124. ——— ; 1953 : "Protohistoric Investigation" *AI*, No. 9, pp. 80-102.
125. ——— ; 1962 : "From Megalithic to the Harappa ; Tracing Back the Graffiti on the Pottery", *AI*, No. 16, pp. 4-24.
126. ——— ; 1963 : "The only Asian Expedition in the Threatened Nubia : Work by an Indian Mission at Afyeh and Tumas", *The Illustrated London News*, No. 6455, Vol. 242, pp. 579-581.
127. Leeds, E.T. ; 1918-20 : "The Dolmens and Megalithic Tombs of Spain and Portugal" *Archaeologia*, Vol. 70, pp. 201-232.
128. Logan, W. ; 1887 : "Malbar" Vol. I, pp. 179-83.
129. Longhurst, A.H. ; 1912-13 : "Conservation Notes" *Annual RASI*, Southern Circle, Madras, pp. 41, 56-57.
130. ——— ; 1914-15 ; *Annual RASI, Southern Circle*, Madras, pp. 39-41.

131. Mackenzie J. S. F. ; 1873 : "On the Rude Stone Archaeology of Hassan District, Maisur," *IA*, Vol. II, pp. 7-10.

132. Mahadevan C. ; "A Note on the Archaeological Finds in Southern and South-Western Parts of Shorapur Taluks (Unpublished paper).

133. Mahadevan, C. ; 1941 : "Geology of the South and West Parts of Gulbarga", *JHGS*, Vol. IV, Pt. I, pp. 102-124.

134. Mahadevan, C.; 1941a : "Geology of the South and South Western Parts of Surapura Taluka, Gulbarga District", *JHGS*, Vol. IV, pp. 148-151 and 159-60.

135. Mahalingam T.V. ; 1969 : "Graffiti Symbols on Ancient Indian Pottery", *Deccan Herald*, Weekly Magazine, Oct. 12, '69.

136. ——— ; 1970 : *Excavations in the Lower Kaveri Valley*, University of Madras, Madras.

137. Maurice Phillips, Rev ; 1873 : "Tumuli in the Salem District", *IA*, 2, pp. 223-228.

138. Mukherjee, S. K. ; 1941 : "Geology of Parts of Surapur and Shahapur Talukas, Gulbarga District", *JHGS*, Vol. IV, Pt. I, pp. 20-21 and 47-51.

139. Mulhern, J. ; 1868 : "Cromlechs in India" *Proc. of the Asiatic Soc. of Bengal*, pp. 116-118.

140. Munn, L. ; 1921 : "Ancient Mines and Megaliths in Hyderabad", *Manchester Memoirs*, pp. 1-11.

141. ——— ; 1934 : "Economics" Section B, *JHGS*, Vol. II, pp. 77-100.

142. ——— ; 1934 : "Prehistoric and Protohistoric Finds", *JHGS*, Vol. II, Pt. I, pp. 121-135.

143. Nagaraja Rao, M.S.; 1964 : "Recent Explorations in the Tungabhadra Basin—The Chalcolithic Phase" *BDCRI*, Vol. 23, pp. 55-77.

144. ———; 1965 : "Archaeological Remains of the Dharwar District—A Review", *Journ. of Asiatic Society of Bombay*, pp. 154-164.

145. Nagaraja Rao, M.S. and Malhotra, K.C.; 1965a : *The Stone Age Hill—Dwellers of Tekkalakota*, Poona.

146. Nagaraja Rao, M.S.; 1966 : *The Chalcolithic Culture of the Deccan with Special Reference to North Karnataka*, Poona, Unpublished Ph.D. thesis.

147. ———; 1967 ; "New Evidence for Neolithic Life in India : Excavations in Southern India", *Archaeology*, Vol. 20, No. 1, pp. 28-35.

148. ———; 1971 : *Protohistoric Cultures of the Tungabhadra Valley*, Dharwar.

149. Narayana Babu, P. ; 1971 : "A Rare Passage Grave in North Karnataka", *Studies in Indian History and Culture* (P.B. Desai Felicitation Volume).

150. Numa-Laffitte ; 1931 : "A Note on Certain Signs Inscribed on Pottery found in Ancient Funeral Urns in South India", *IA*, Vol. LX, pp. 137-138.

151. Panchamukhi, R.S. ; 1946 : "Dolmens and Cairns of Karnataka" *Proc. Journ. of Bombay University*, Vol. XIV, Pt. IV, pp. 10-28.

152. Purushottam Singh ; 1968 : "Megaliths of North-Western India"—A paper read in the seminar on *The Problem of Megaliths in India* under the auspices of the Deptt. of AIHC&A, BHU, Varanasi.

153. Peake Harold ; 1916 : "The Origin of the Dolmen", *Man*, pp. 116-121.

154. Raftery Joseph ; 1951 : *Prehistoric Ireland.*

155. Raghavan M.D. ; 1935 : "A Ram shaped Sarcophagus from Cuddappah" Current-Science, Vol. IV, pp. 306-307.

156. ————; 1936 : "The Rock Cut Caves of Malbar", *Dr. Krishnaswami Aiyangar Commemoration Volume*, pp. 384-389.

157. Ramachandran, K. S. ; 1961 : "Bridle bite from Indian Megaliths" *QJMS*, Vol. LI, pp. 170-172.

158. ———— ; 1968 : "Megalith Rock-Cut Caves and their parallels outside India", A paper read in the Seminar on *The Problems of Megaliths in India*, under the auspices of the Deptt. of AIHC&A BHU, Varanasi.

159. ———— ; 1969-70 : "Chronology of the Indian Megaliths some considerations" *Puratattva BIAS* of the No. 3, pp. 107-109.

160. ———— ; 1971 : *A Bibliography on Indian Megaliths*, Govt. of Tamil Nadu, Madras.

161. Ramaswamy, L.V. ; 1929 : "Dravidic Place-Names in the Plateaux of Persia" *QJMS*, Vol. XX, No. I, pp. 49-53.

162. Rao, S.R. ; 1961 : "Lothal and West Asia", *ICAA*, New Delhi, pp. 46.

163. ———— ; 1963 : "Persian Gulf Seal from Lothal", *Antiquity*, Vol. No. 144.

164. ———— ; 1965 : "Shipping and Maritime Trade of the Indus People", *Expedition*, Vol. VII, No. 3, pp. 30-37.

165. Reddy, V.R. ; 1972 : "*Pre-and Proto-Historic Culture of South-Western Andhra Pradesh*, Poona, See *JKUS*, Vol. VIII, pp. 125-135.

166. Reisenfeld Alphonso ; 1952 : *The Megalithic Culture of Melanasia*, Leiden.

167. Richards, F.J. ; 1924 : "Note on Some Iron Age Graves in North Arcot District, South India", *Journ. of the Royal Anthropological Institute of Great Britain and Ireland*, Vol. 54, pp. 157-165.

168. Roy Choudhury, Dibyendu ; 1964 : "Problems of Race Identification and Race Movements in Pre-and Proto-Historic India", *Proc. Volume of the Summer School in Anthropology.*

169. Rybot, N.V.L. ; 1931 : "Groups of Menhirs in Kashmir", *Man*, Vol. XXXI, No. 115.

170. Sali, S.A. ; 1964 : "A New Ceramic of the Chalcolithic from Dhulia" *Journ. Asiatic Soc. Bombay*, Vol. 98, pp. 207-210, Pl. J. Figs. 2-5.

171. Sankalia, H.D. et. al ; 1950 : "Studies in Prehistory of Karnataka" *BDGRI*, Vol. 71, No. 1, pp. 56-82.

172. ———— ; 1960 : *From History to Prehistory, At Nevasa*, Poona.

173. ———— ; 1962 : *Indian Archaeology Today*, Bombay.

174. ——— ; 1963 ; "New Light on the Indo-Iranian or Western Asiatic Relations between 1700-1200 B.C." *Artibus Asiae*, Vol. XXVI, pp. 312-332.

175. ——— ; 1969 : "Sixth Stage" in the paper, "Beginning of Civilization in South India" a paper read in the *International Conference Seminar on Tamil Studies*, Madras.

176. Sarkar, H. ; 1966 : "Kesarapalle 1962" *AI*, 22, pp. 32-74.

177. Sarkar, S.S. ; 1960 : "Human Skeletal Remains from Brahmagiri" *Bulletin of the Deptt. of Anthropology*, Vol. IX, No. 1, pp. 5-26.

178. Sastri, K.N. ; 1961 : "New Light on the Indus Civilization and Early Contacts with Iraq and Iran", *ICAA, Summaries of Papers*, p. 51.

179. Saxena, K.K. ; 1965 : "Indus-Euphrates-Nile", *Indo-Asian Culture*, Vol. XIV, No. 3. pp. 200-205.

180. Schaeffer ; 1948 : *Stratigraphic, Comparee et. Chronologie de l' Asie Occidentale*, Oxford.

181. Sen, D.K. ; 1964 & 1965 : "Ancient Races of India and Pakistan : A Study of Methods", *AI*, Nos. 20 & 21, pp. 178-206.

182. Seshadri, M. ; 1955 : "New Light on Megalithic Dating". Paper read before the Archaeology Section of the *All India Oriental Conference*.

183. ——— ; 1956 : *The Stone Using Cultures of Prehistoric and Protohistoric Mysore*, London, pp. 59-72.

184. ——— ; 1960 : *Report on the Jadigenahalli Excavations*, for the year 1957, Bangalore.

185. ——— ; 1961 : "Exploration of Sites of Russet Coated Ware with Kaolin Designs in Mysore", *Journ. of Mysore University*, Vol. XX, No. 2, pp. 8-14.

186. ——— ; 1971 : *Excavations at T. Narasipur*, Mysore.

187. Sharma, A.K. ; 1967 : "Neolithic Human Burials from Burzahom, Kashmir", *Journ. of the Oriental Institute*, Vol. XVI, pp. 239-242.

188. Sharma, Y.D. ; 1956 : "Rock cut Caves in Cochin", *AI*, No. 12, pp. 93-115.

189. Shaw, R.B. ; 1872 : "Religious Cairns of the Himalayan Regions", *Report of the British Association for the Advancement of Science Transactions*, pp. 194-197.

190. Sircar, D. C. ; 1955 : "The Dravidian Problem", *MI*, Vol. XXXV, pp. 31-38.

191. Smith, Elliot ; 1913 : "The Origin of the Dolmens", *Man*, pp. 193-195.

192. Soundara Rajan, K.V.; 1963 : "Community Movements in Protohistoric India", *Journ. of the Oriental Institute*, Vol. XII, No. 1 to 4, pp. 69-82.

193. ——— ; 1963 ; "The Iron Age Cultural Provinces of India", *Bharatiya Vidya*, Vol. XXII, No. 1 to 4, pp. 1-21.

194. ——— ; 1964 : "Chronological and Cultural Aspects of the Indian Neolithic Based on Recent Data", *Journ. of Indian History*, Vol. XLII, Pts. 1-3, pp. 107-117.

195. Srinivasan K.R. ; 1938-39 : "Archaeology, *RSMP*, pp. 3-5.

196. ——— ; 1939-40 : "Archaeology" *RSMP*, pp. 2-12.

197. Srinivasan, K.R. ; 1940-41 : "Archaeology" *RSMP* p. 14.

198. ——— ; 1941-42 : „ „ pp. 6-7.

199. ——— ; 1942-43 : „ „ pp. 6-7.

200. ——— ; 1943-44 : „ „ pp. 7-9.

201. ——— ; 1944-45 : „ „ pp. 5-7.

202. ——— ; 1944 : "Indian Megaliths with Special References to Pudukkottai" *Proc. of the Indian Science Congress*, p. 97.

203. ——— ; 1947 : "The Megalithic Burial and Cairn Fields of South India in the Light of Tamil Literature and Tradition," *AI*, No. 2, pp. 9-16.

204. Srinivasan, K.R. and Benerjee, N.R.; 1953 : "Survey of South Indian Megaliths" *AI*, No. 9, (Silver Jubilee Number) pp. 103-116.

205. Srinivasan, K.R . 1958-59 : "The Megalithic Monuments of South India : Literature and Tradition", *Transactions of the Archaeological Soc. of South India,* pp. 1-14.

206. ———; 1960: "Some Aspects of Religion as Revealed by Early Monuments and Literature of the South : The Megaliths Cult", *Journ. of Madras University*, Vol. XXXII, No. 1, pp. 131-138.

207. Stacul Giorgic: 1966 : "Preliminary Report on the Pre-Buddhist Necropolis in Swat (W. Pakistan)," *East and West*, Vol. 16, Nos. 1-2, pp. 37-80.

208. ———; 1957 : Discovery of Four Pre-Buddhist Cemeteries near Pacha in Bunner (*Swat, W. Pakistan*), Rome.

209. Stein Aurel ; 1937: *Archaeological-Reconnaissances in North-Western India and South-Western India and South-Eastern Iran,* London.

210. Subba Rao, B. ; 1948: "*Stone Age Cultures of Bellary*, Poona.

211. ———; 1949 : *Prehistoric and Early Historic Bellary,* Poona. Unpublished Ph.D. thesis.

212. ———; 1958 : *The Personality of India*, Baroda (Second Edition).

213. ———; 1962 : "Megalithic Problem of South India and the Dravidian Languages", *Transactions of the Archaeological Society of South India* (Silver Jubilee Vol.), pp. 132-151.

214. Subramanyam, B. R.; 1966 : "Iron Age in India—its Beginning", *Journ. of the Maharaja Sayaji Rao University*, Baroda, Vol. IV, No. I, pp. 69-78.

215. Sundar, G. R.; 1968 : "Discovery of Megaliths in Beluvanakudige, Near Shringeri" reported in Kannada daily, *Samyukta Karnataka,* Dec. 26, '68, p. 1.

216. Sundara, A. ; 1966-67 : "Some New Types of Megalithic Tombs Near Terdal, Halingal, etc., Jamkhandi Taluka, Bijapur Dist. Mysore State" *QJMS*, Vol. LVII, Nos. 1 to 4, pp. 1-10.

217. ——— ; 1968 : "Protohistoric Sites in Bijapur Dist." *JKUS*, Vol. IV, pp. 1-23.

218. ——— ; 1969 : "Some Aspects of the Neolithic Sites in Malnad, Mysore State", "*QJMS* Vol. LIX, Nos. 1 to 4, Bangalore, pp. 183-203.

219. Sundara, A.; 1969-70 : "A New Type of Neolithic Burial in Terdal, Mysore State," *Puratattva, BIAS*, Vol. No. 3, pp. 23-33.

220. ———— ; 1970 : "A New Type of Passage Chamber Tomb in Kaladgi, Dt. Bijapur, Mysore State." (Prof. Sankalia Felicitation Volume) *IA* Vol. IV, Nos. 1 to 4, pp. 216-226.

221. ———— ; 1970a : "Neolithic Cultural Patterns and Movements in North Mysore State." (First Part). *JKUS*, Vol. VI, Dharwar, pp. 1-13.

222. ———— ; 1971 : "Neolithic Cultural Patterns and Movements in North Mysore State (Second Part), *JKUS*, Vol. VII, pp. 1-8.

223. ———— ; 1971a : "Megaliths in Western Ghat and Coast Region, Mysore State; Their Types and Character." *Proc. of the Indian Science Congress* 58th Session, Bangalore, No. 80.

224. ———— ; 1971b : "New Discoveries of Ash Mounds in North Karnataka : Their Distribution and Implications." *Prof. K.A. Nilakanta Sastry Felicitation Volume*, Madras, pp. 308-315.

225. ———— ; 1971c : "A Megalithic Site in Kajekaru, Dist. South Kanara." *Indological Research Bulletin*, Milagrese College, Kallianapura, Dist. South Kanara, Milagrese College Magazine, Vol. IV.

226. ———— ; 1971d : "Chalcolithic Phase in the Upper Krishna" *Studies in Indian History and Culture*, Dr. P.B. Desai Felicitation pp. 13-30.

227. ———— ; 1971e : "A Unique Megalithic Monument and other Megalithic Tombs in Hunur, Dist. Belgaum, Mysore State." *East and West, ISMEO*, Vol. XXI 2. Nos. 1-2, pp. 97-102.

228. ———— ; 1971f : "Menhirs in Karnataka." Presented to *S.C. Roy and 100 Years of Anthropology and International-centinniel Symposium*, Deptt. of Anthropology, University of Ranchi, Ranchi.

229. ———— ; 1972 : "Further Notices of Rock Paintings in Hire Benkal, Raichur Dist. Mysore State." *Proc. of the 59th Annual Session of the Indian Science Congress Association* at Calcutta.

230. ———— ; 1972a : "Megaliths in Hallur : Their Types and Character." *JKUS*, Vol. VIII, Dharwar, pp. 1-6.

231. ———— ; 1972b : "A Megalithic Site at Rajawala : New Light on the Passage Chamber Tradition." Read in the V Annual Congress of *Indian Archaeological Society*, at Bombay, 1972.

232. ———— ; 1972c : "On the Association of Graffiti with Megalithic Pottery." Presented to the IV Session of the *Indian Archaeological Society*, at Kurukshetra.

; 1972d : "*Archaeological Congress and Seminar Papers*, IV Annual Congress of the Indian Archaeological Society and the Seminars held at Nagpur, 1970, Nagpur University, pp. 119-125.

233. ———— ; 1973 : "The Chronological Order of Megalithic Tomb-types in North

Karnataka." *Radio Carbon and Indian Archaeology*, Tata Institute of Fundamental Research, Bombay, pp. 239-251.

234. Sundara, A.; 1973a: "Are the Pit-circles in Brahmagiri, macerating Pits?" *Proc. of the 60th Session of Indian Science Congress* at Chandigarh. Full paper is published in *QJMS*, Vol. LXIII, Bangalore, pp. 8-13.

235. ——— ; 1974 : "Passage Chamber Tombs of Karnataka and Western Europe: A comparison. Presented to 61st Session of the Indian Science Congress Association, at Nagpur." Full paper is published in *Journ. of Karnataka Historical Research Society*, Vol. IX, Dharwar, pp. 44-48.

236. ——— ; 1974a : "Megaliths in the Western Coast and Ghat Regions of Karnataka : A Study" *JKUS*, Vol. X, pp. 62-71.

237. ——— : 1975 : "Some Archaeological Evidences of the Cultures at Brahmagiri and Chandravalli with Special Reference to the Andhra Culture : A Chronological Reconsideration." Presented to 62nd Session of the Indian Science Congress Association, New Delhi.

238. ——— : Taylor, M. ; 1851 : "Ancient Remains at the village of Jiwargi near Ferozabad on the Bhima" *Journ. of the Bombay Branch of the Royal Asiatic Society*, Vol. III, Pt. 2, pp. 179-196.

239. ——— ; 1853: "Notices of Cromlechs, Cairn and Other Ancient Scytho-Druidical Remains in the Principality of Shorapur" *Journ. of the Bombay Branch of the Royal Asiatic Society*, Vol. IV, pp. 380-429.

240. ——— 1862 : "Description of Cairns, Cromlechs, Kistvaens and Other Celtic-Druidical or Scythian Monuments in Dekhan." *Transactions of the Royal Irish Academy, Antiquities*, Vol. XXIV, Pt. III, pp. 329-362.

241. ——— ; 1941 : "*Megalithic Tombs and Other Ancient Remains in the Deccan.* (containing his papers from the Bombay Branch of the Royal Asiatic Society for Jan. 1851, Vol. III, pp. 179-196 ; the same Journ. 1852, Vol. IV, pp. 380-429, and from the Transactions of the Royal Irish Academy, Vol. XXIV, Pt. III, *Antiquities*, pp. 329-362). Republished by the Deptt. of Archaeology, Hyderabad.

242. Thapar, B.K. ; 1952 : "Prokalam 1948-Excavation of a Megalithic Urn Burial", *AI*, No. 8, pp. 3-8.

243. ——— ; 1957 : "Maski 1954, a Chalcolithic Site of the Southern Deccan" *AI*, No. 13, pp. 4-142.

244. Tondon, O.P. ; 1967-68 : "Alamgirpur and the Iron Age in India", *Puratattva*, No. I, *BIAS*, pp. 54-61.

245. Trofimova, T.V. ; 1961 : "The Chalcolithic and Bronze Age Population of Central Asia and its South Indian Relations in the Light of the Latest Chronological Data" *ICAA* Summaries of papers, p. 62.

246. Turner, H.G. ; 1879 : "Cromlechs", *IA*, Vol. CIII, p. 207.

247. Vanstavern, T. ; 1875 : "Note on the Antiquities Found in Parts of the Upper Godavari and Krishna Districts." *IA*, Vol. IV, pp. 305-306.

248. Vasudeva-Poduval ; 1933-34 : "On Dolmens in Marayur". Reported in *ARTC*, p. 3-5.

249. ———— ; 1936-37 : "On the Urn-burials in Cenkotta" Reported in *ARTC*, 1936-37.

250. ———— ; 1939-40 : "On Menhirs in Alappara and Dolmens in Periakanal-Devikolam Road," Reported in *ARTC*, p. 16.

251. ———— ; 1939-40 : "On the Excavations of a Menhir in Bison Valley", Reported in *ARTC*, pp. 14-17, 1946-47, pp. 1-3 and 1947-48, p. 3.

252. Venkatarama Ayyar ; 1940 : *A Manual of the Pudukkottai State*, Vol. II, Pt. I, pp. 520-526.

253. Waheed Khan, Md. Abdul : *Monograph on Yeleswaram Excavations*, Andhra Pradesh Govt. Archaeological Series, No. 14, Hyderabad.

254. Walhouse, M. J. ; 1875 : Archaeological Notes-Miniature and Prehistoric Pottery", *IA*, Vol. IV. pp. 12-13.

255. ———— ; 1879 : "Some Non-Sepulchral Rude Stone Monuments in India, Persia and the Western Asia," *IA*, Vol. VIII, pp. 164-167.

256. Walter Ruben ; 1939 : "Eisebscgneude und Daemonen in Indian Internationales Archic fuer Ethnographic" Vol. XXXVIII (Supplement).

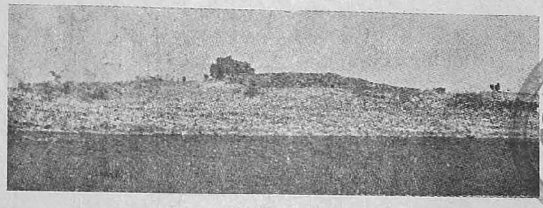
257. Wheeler, R.E.M. ; 1948 : "Brahmagiri and Chandravalli 1947 : Megalithic and Other Cultures in the Chitaldrug District, Mysore State." *AI*, Vol. IV, pp. 181-308.

258. Yazdani, G. ; 1917 : "Megalithic Remains of the Deccan : A New Feature", *JHAS*, pp. 56-79.

PLATES

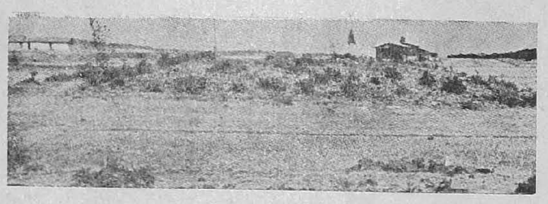
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

3

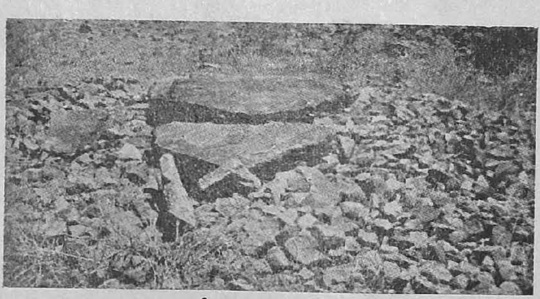


1

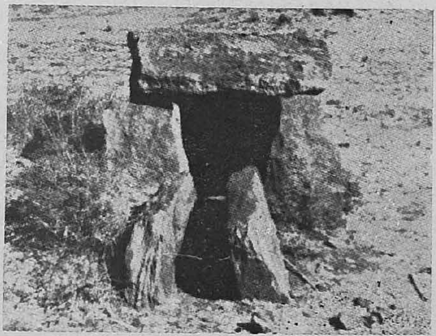
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS



2

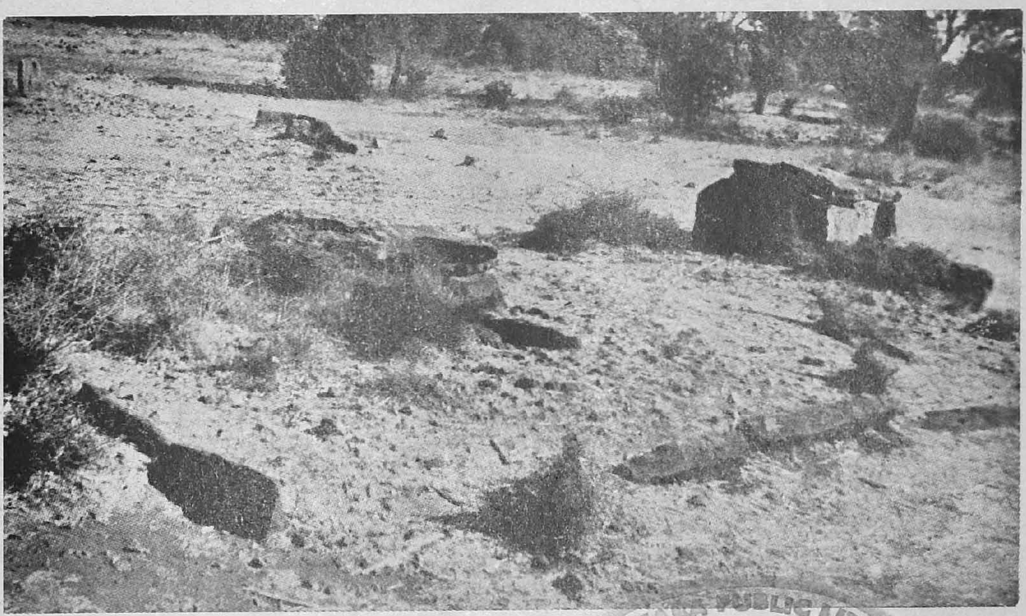


4



5

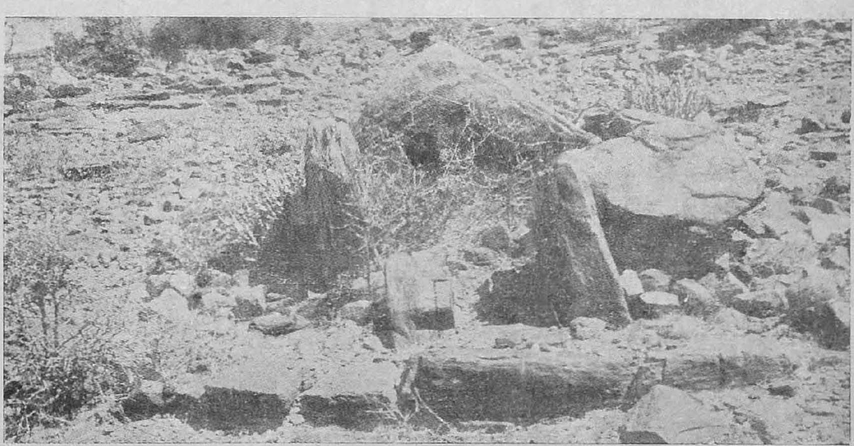
PLATE NO. I : Passage Chambers of the Konnur Type



3

PUBLIC LIBRARY
26 FEB 1975

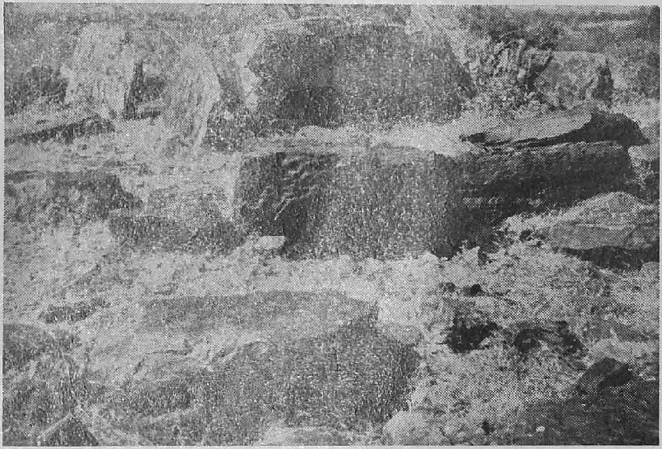
2



4

PLATE No. II : Passage Chambers of the Konnur Type

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS



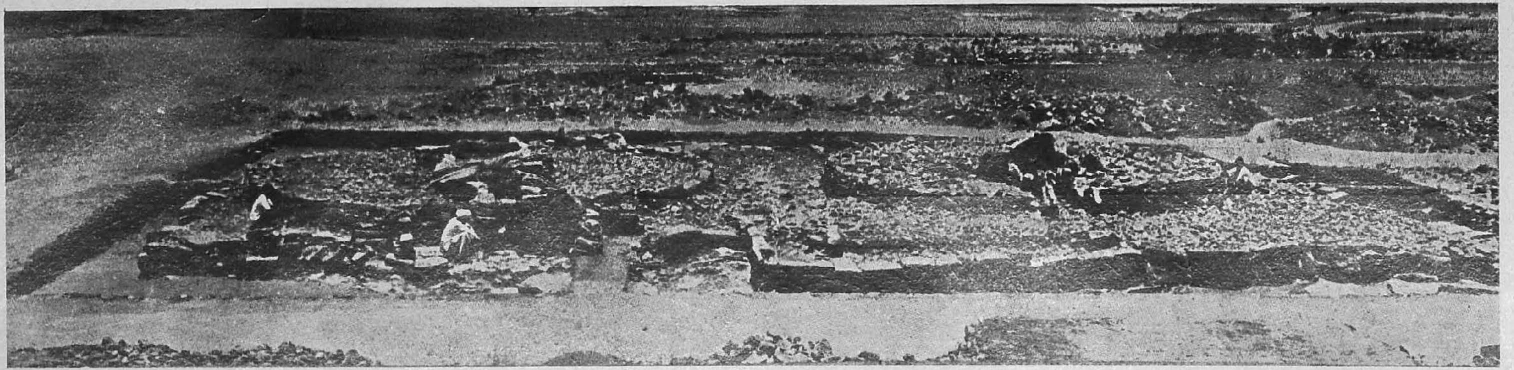
1

PLATE No. III :
Passage Chambers
of the Konnur
Type

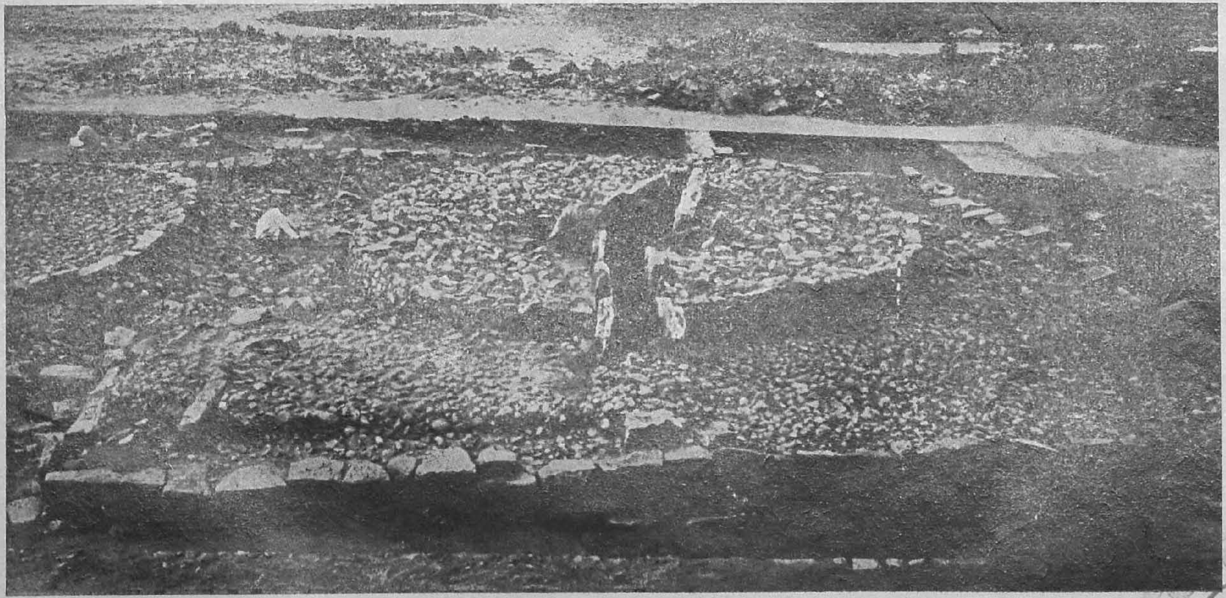
2

3

4



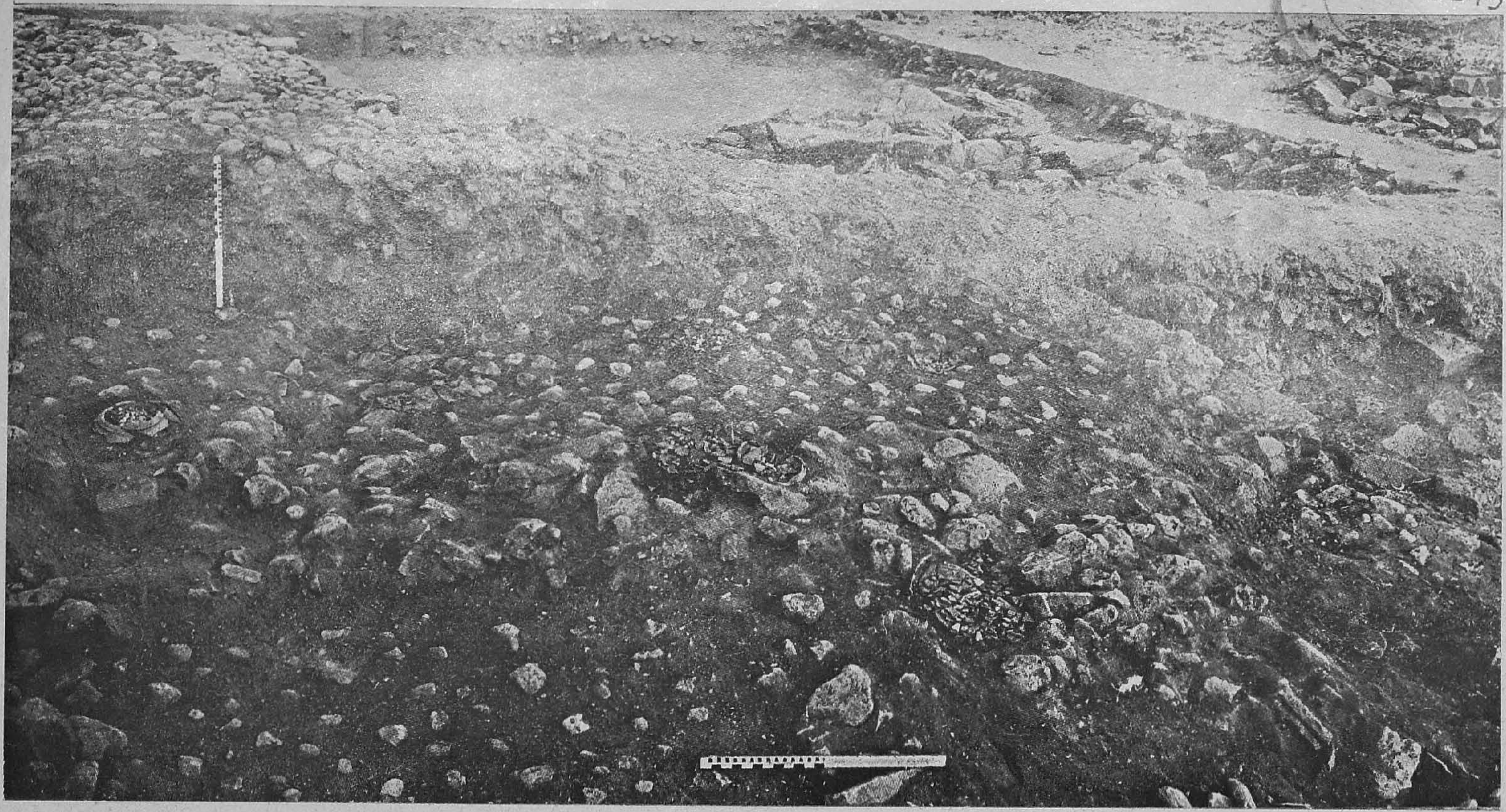
1



2

PLATE NO. IV : The Excavated Long Barrow with Two Passage Chambers

...MARA PUBLIC LIBRARY
26 FEB 1975
MADRAS



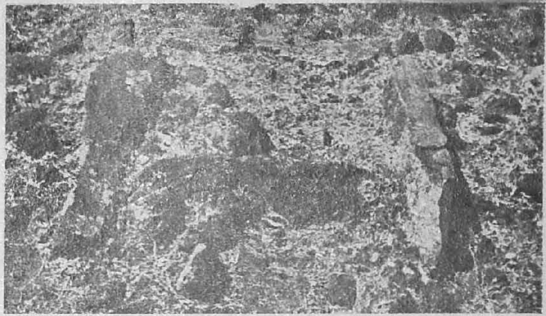
CONNEMARA PUBLIC LIBRARY
26 FEB 1975

PLATE NO. V : Pot-Burials with the Cairn Packing of the Excavated Long Barrow

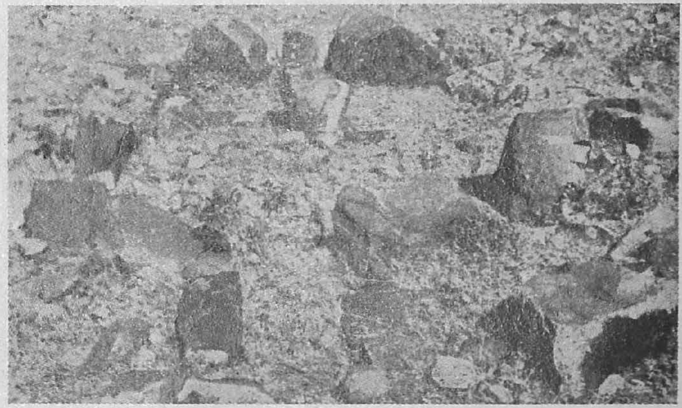
... PUBLIC LIBRA...
26 FEB 1975
MADRAS

1

2



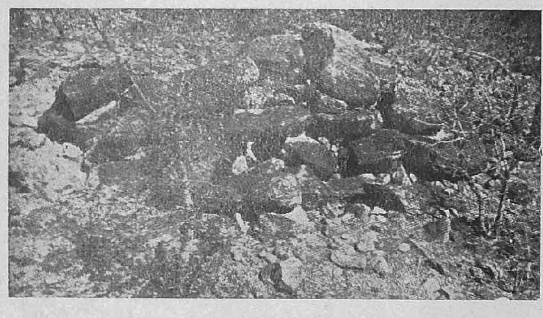
3



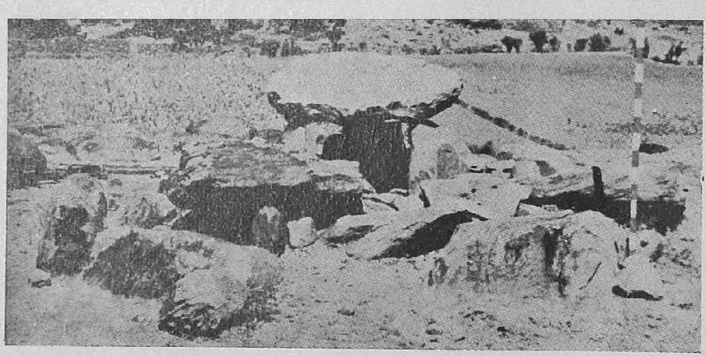
4

PLATE NO. VI :
Passage Chambers and
Small Cists

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS



2



3

4

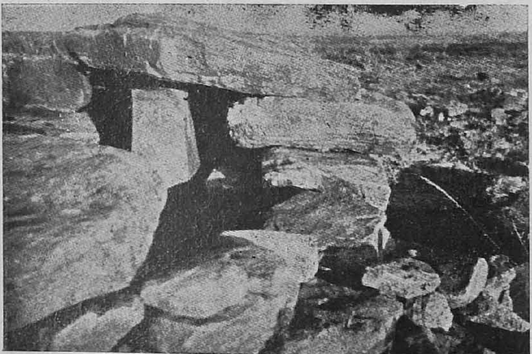
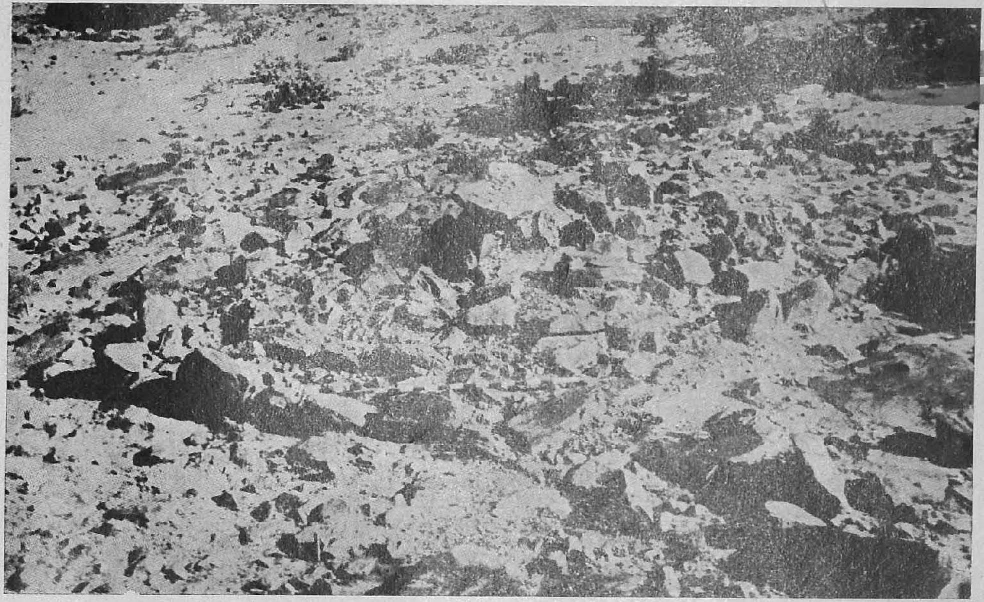


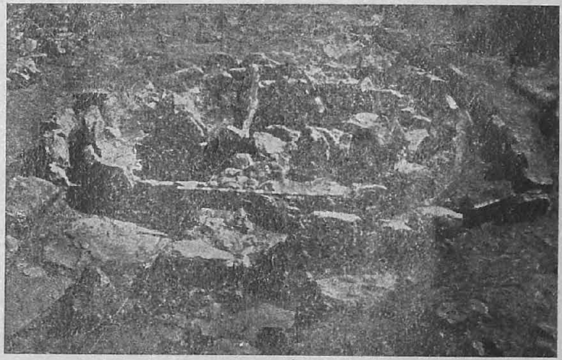
PLATE No. VII. : Circular and Latin Cross Type Passage Chambers

26 FEB 1975



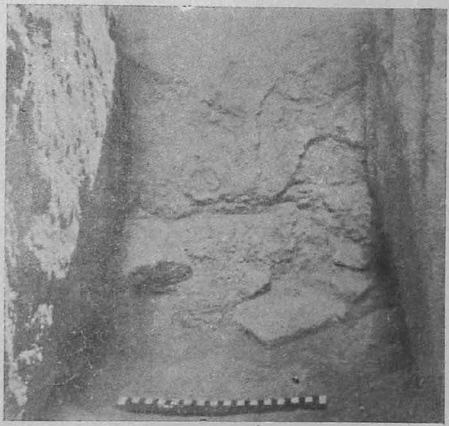
1

PLATE No. VIII :
1, 2 and 4. Terdal : Passage Circular Chamber before and during Excavation.
3. Halingali : A Passage Chamber of Latin Cross Type



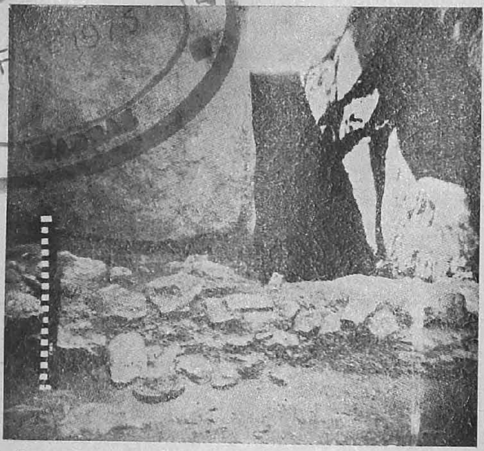
2

3

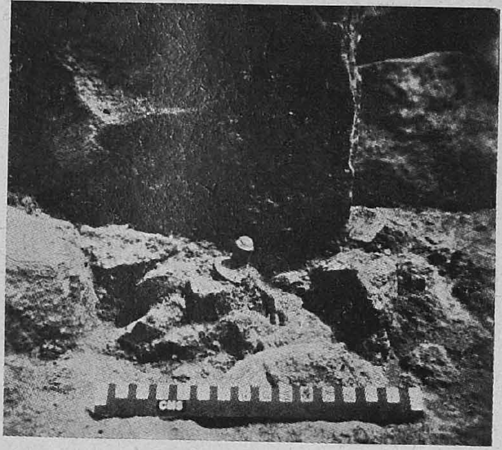


4

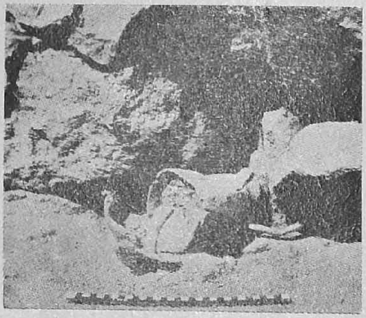
PUBLIC LIBRARY



1

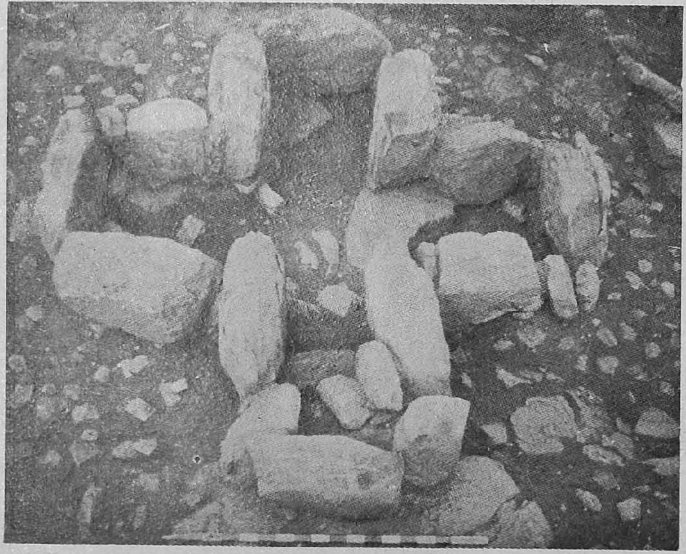


2



3

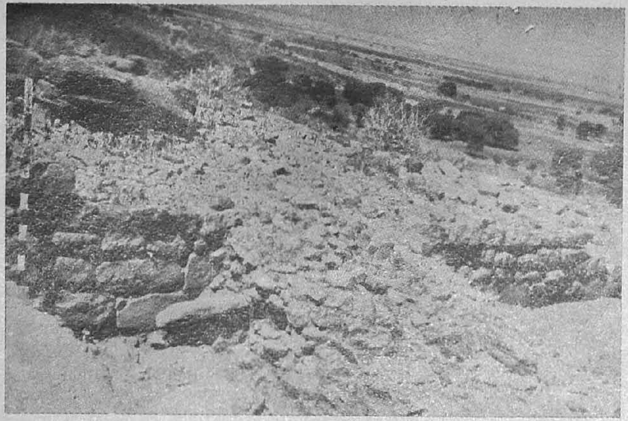
4



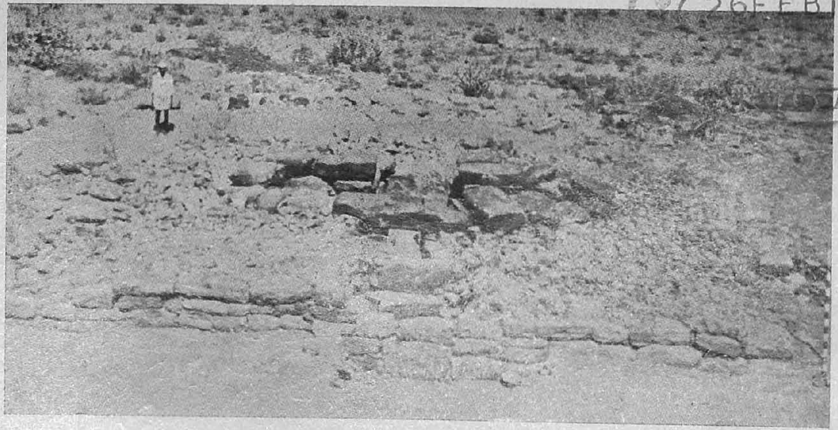
5

PLATE NO. IX : Iron and Pottery Objects in the Excavated Mg. III, Halingali (1, 2 and 3). Excavated Mg. II, Terdal (4, 5)

...MARA PUBLIC LIBRA...
26 FEB 1975
...AS

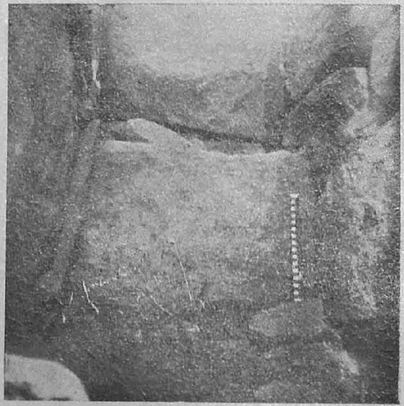


2



1

5



4

3

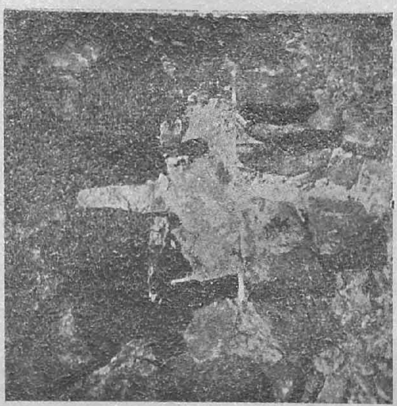


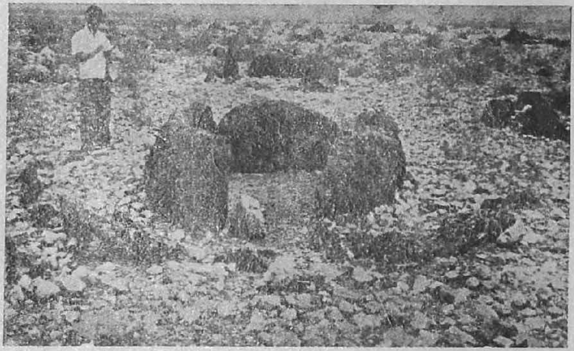
PLATE NO. X : Passage Chamber of Latin Cross Type (Mg. III) during the Excavation

1

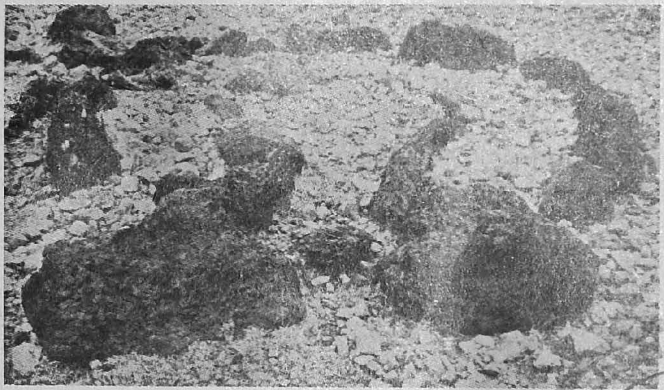
26FEB1975
MADRAS

2

PLATE NO. XI : Excavated Passage Chamber (Mg. III)

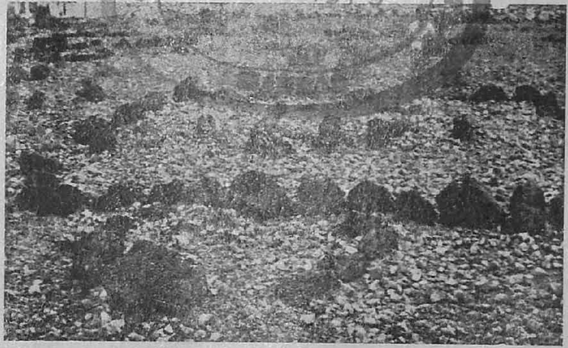


1



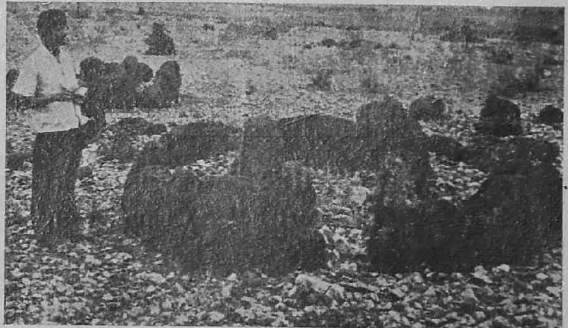
2

26 FEB 1975



3

PLATE NO. XII : Chamber Tombs of the Kaladgi Type



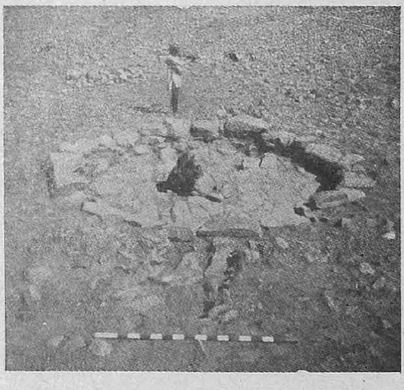
4

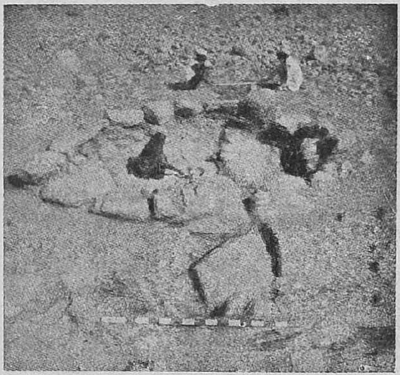
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

1

3

2





4

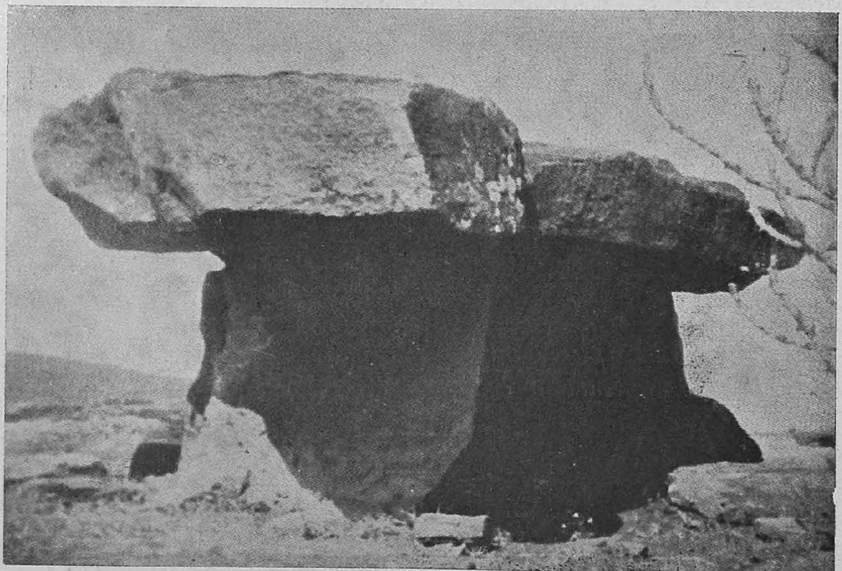
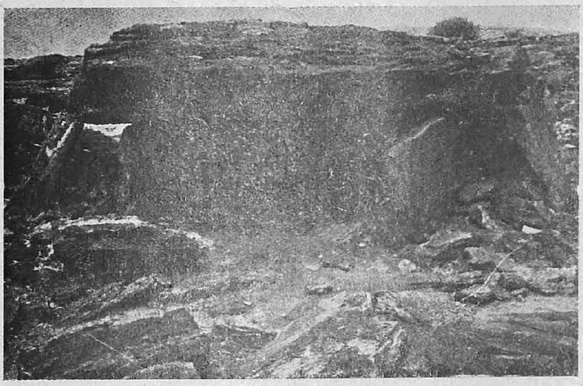


PLATE No. XIII : Excavated Cairn Stone Circles (Mgs. I & II) and Port-holed Chamber of the Rajankolur Type



1

2

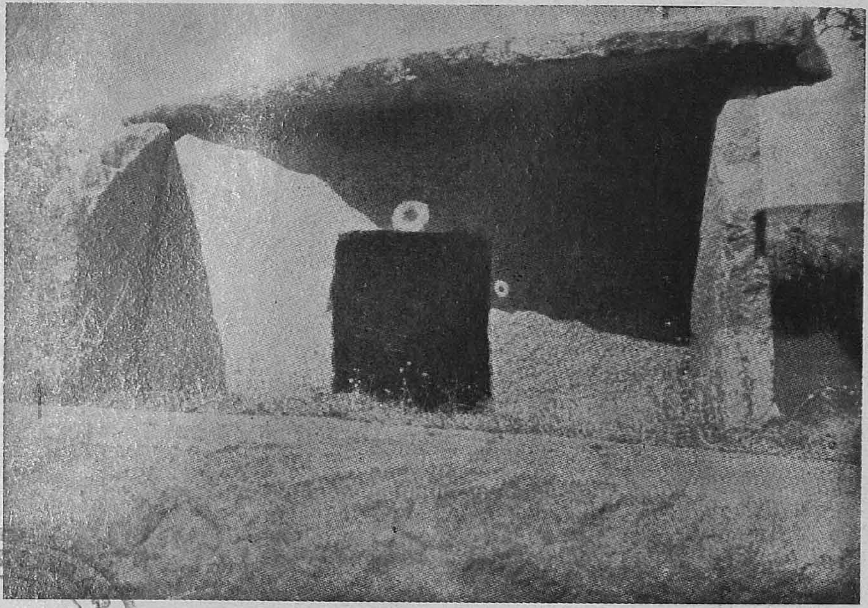
PUBLIC LIBRARY
26 FEB 1975
MADRAS

3

PLATE NO. XIV : Chamber Tombs of the Rajankolur Type (1-3) and Anthropomorphic Cult (?) Figure (4)

4

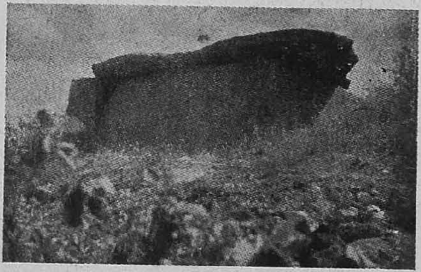
1



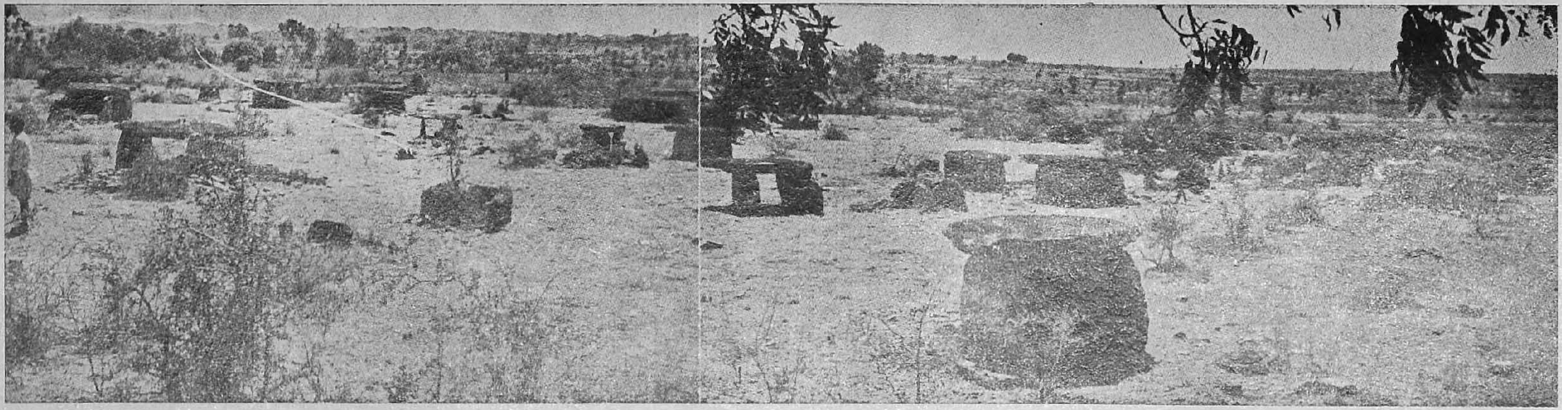
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

PLATE No. XV : Port-holed Chambers of the Rajankolur Type

2

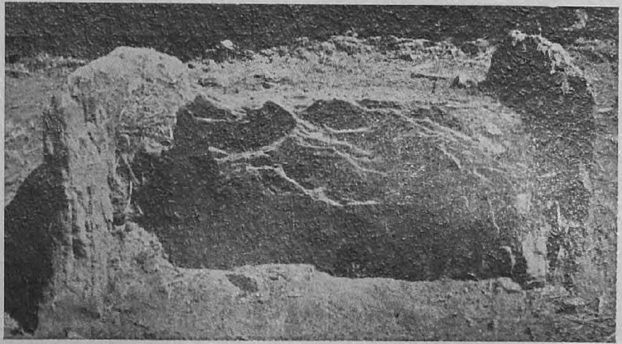


3

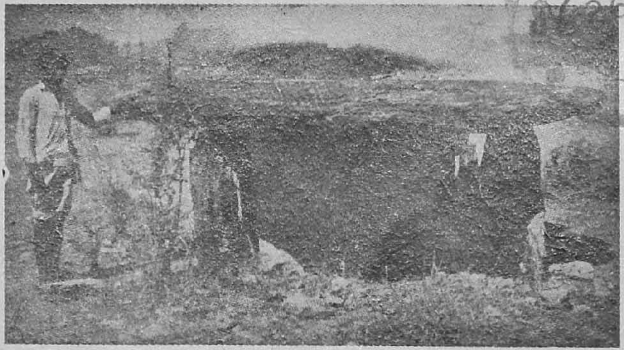


1

3



2



MARA PUBLIC LIBRA
26 FEB 1975
MADRAS

PLATE No. XVI : Port-holed Chambers of the Rajankolur Type

PUBLIC LIBRA
26 FEB 1975

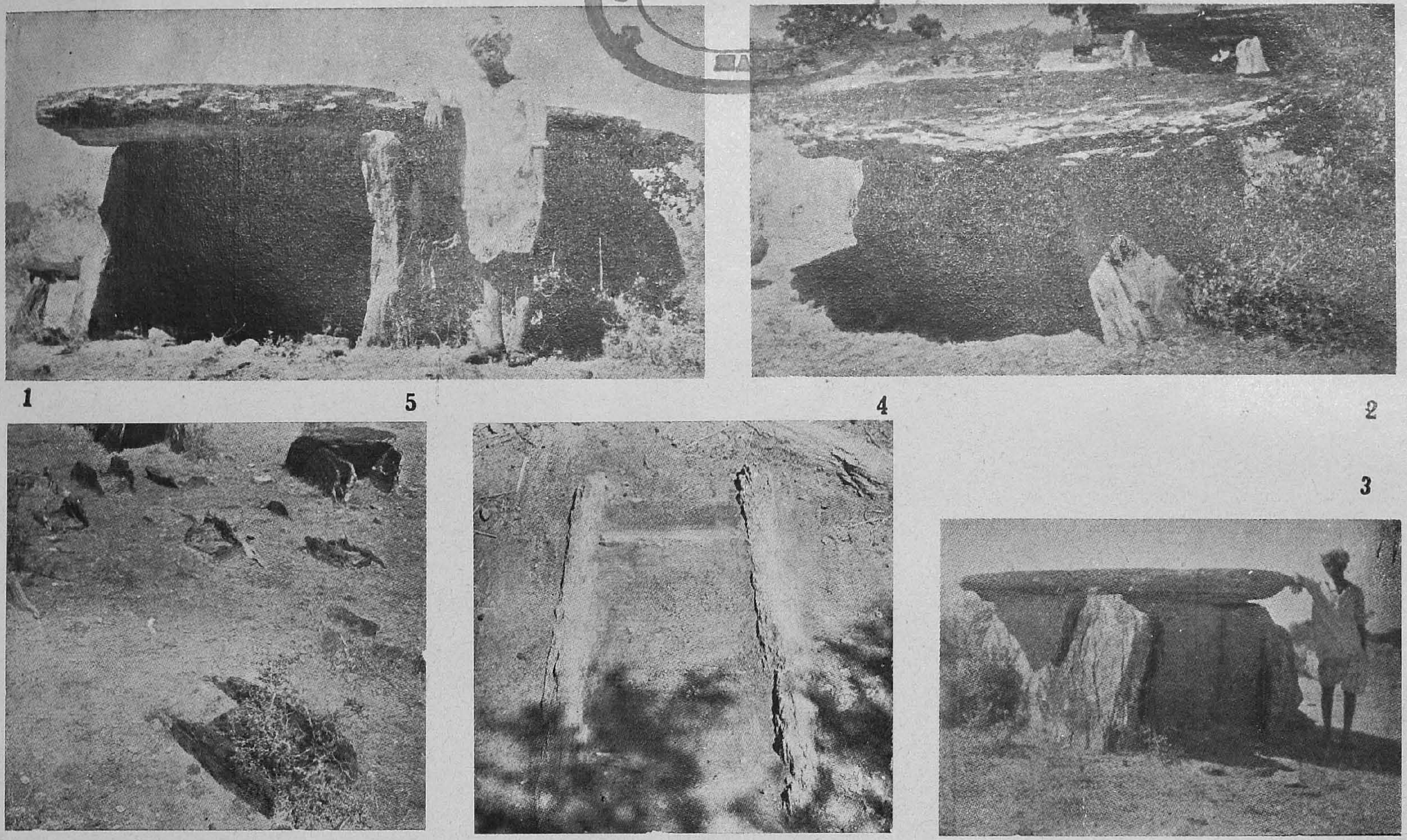
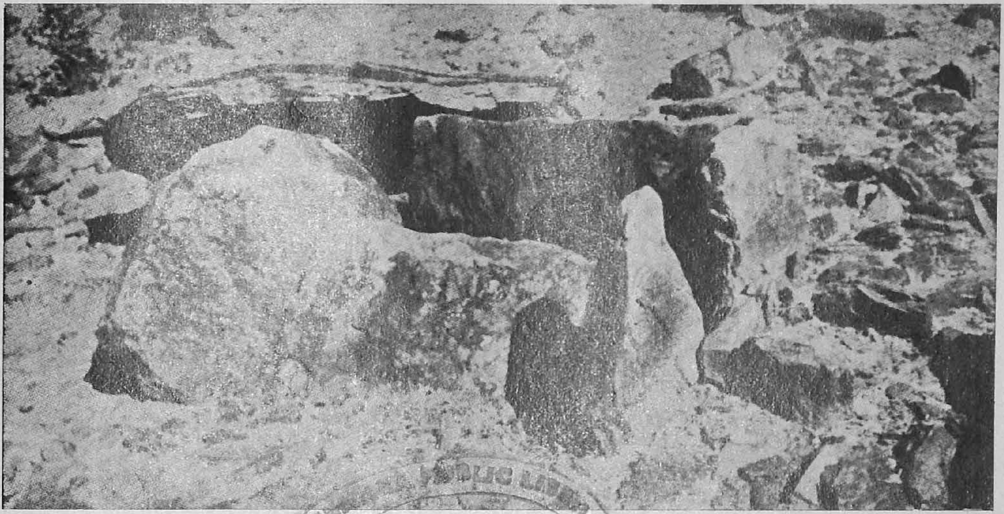


PLATE No. XVII : Port-holed Chambers of the Rajankolur Type and Cists



1

PUBLIC LIBRARY
26 FEB 1975
MADRAS

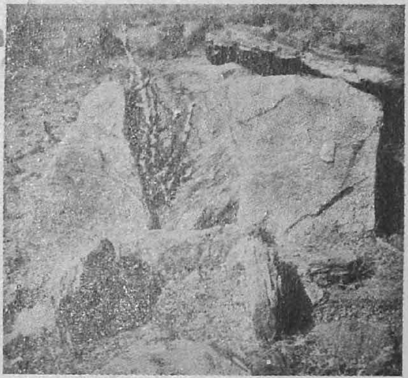
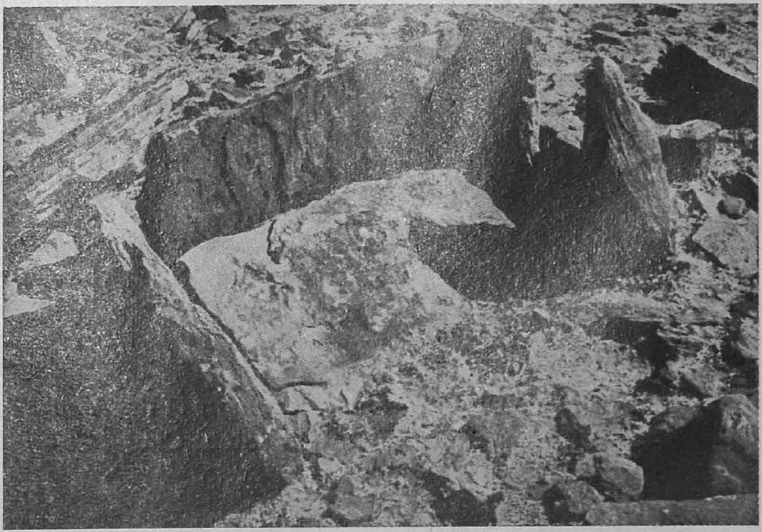
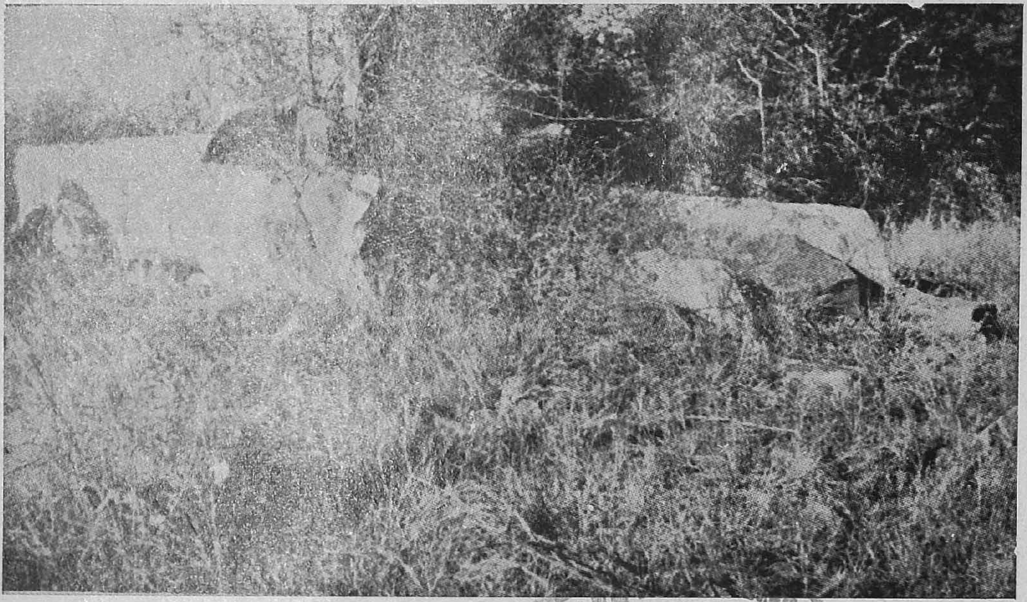


PLATE No. XVIII : 1-3. Aihole : Three Views of a Port-holed Chamber

2

3





1

5FEB1975
MADRAS

3

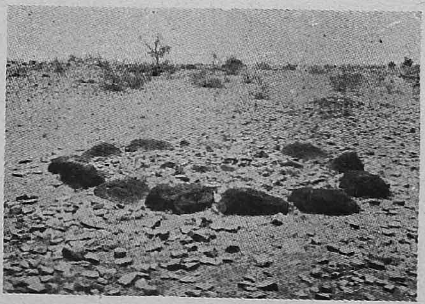
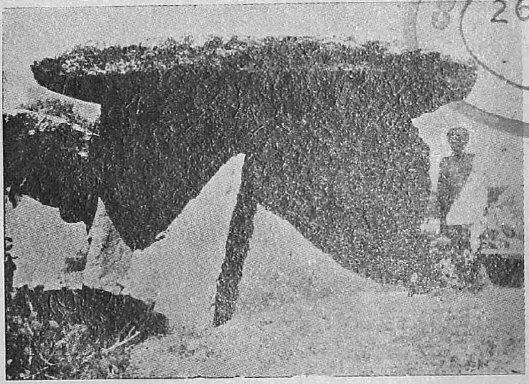


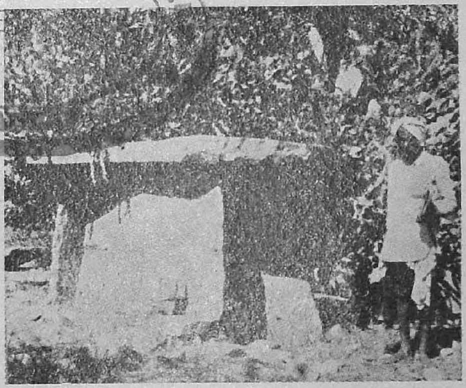
PLATE No. XIX : Port-holed Chamber of the Aihole Type (1). Oblong Cist (2). Cairn Stone Circles (3, 4)

3

2



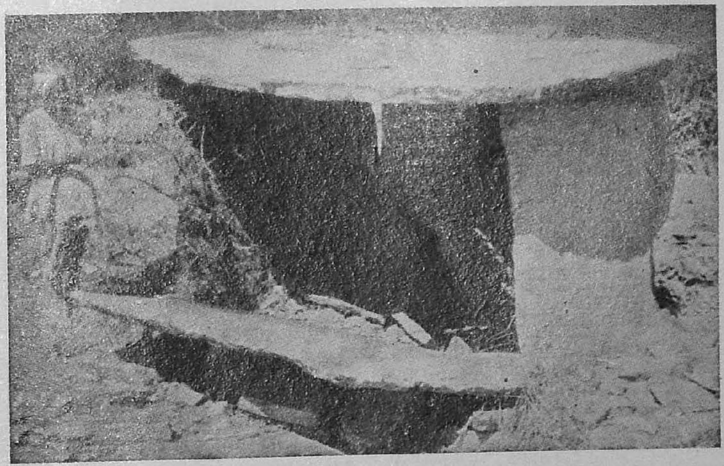
1



26FE

PLATE NO. XX : Port-holed Chamber Tombs of Hire Benkal Type

4



CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

1

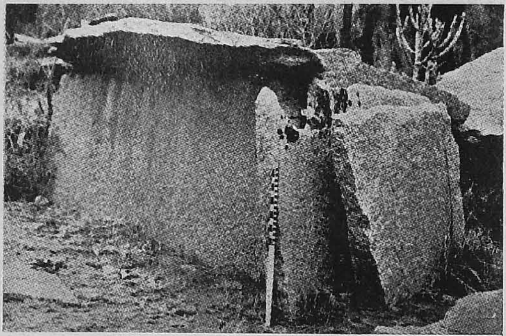
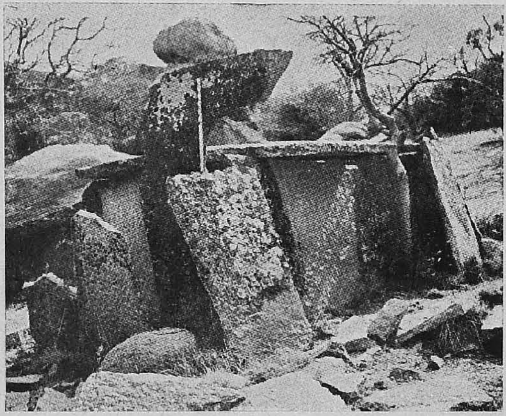
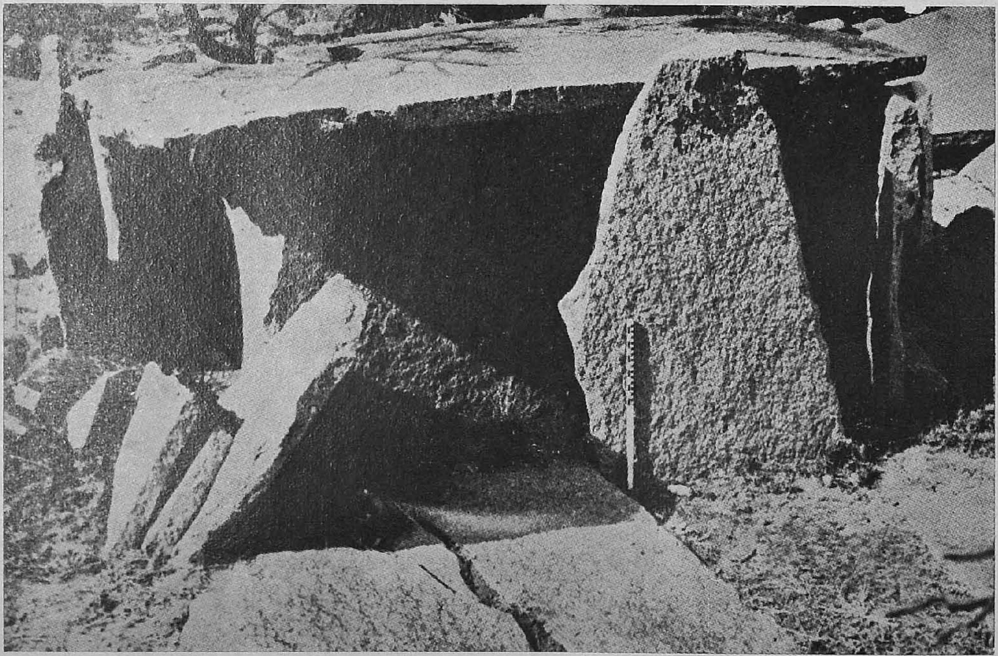


PLATE NO. XXI : Port-holed Chamber Tombs of Hire Benkal Type

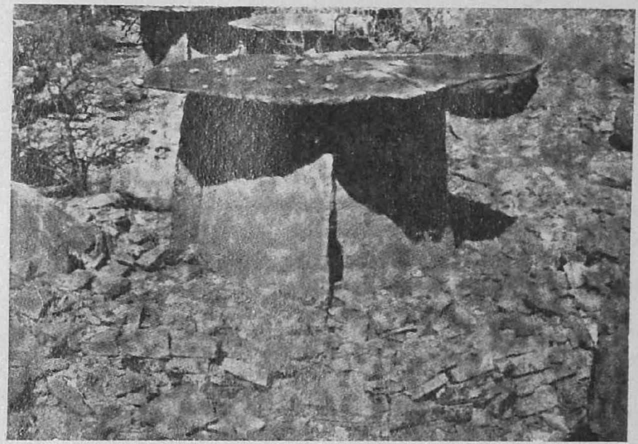
2



3

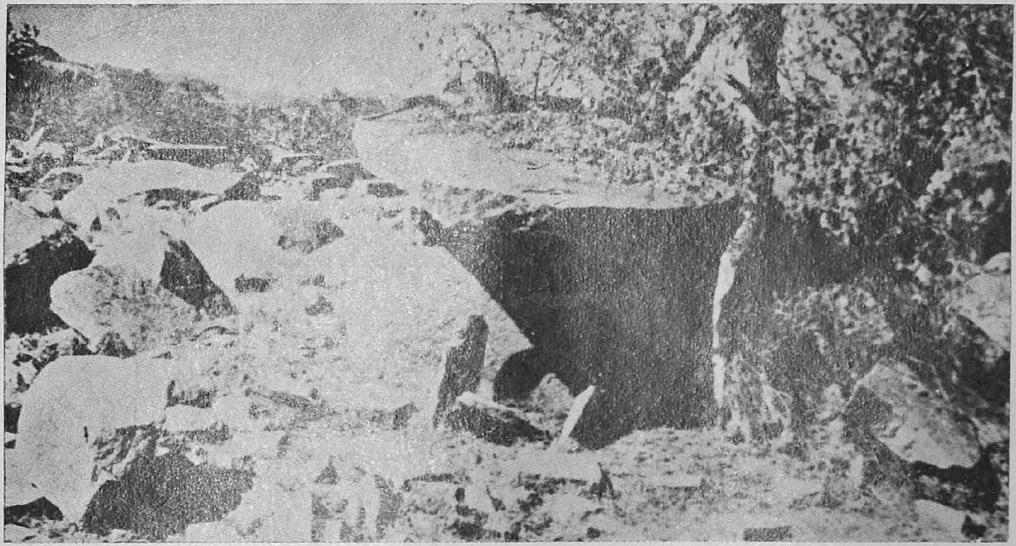


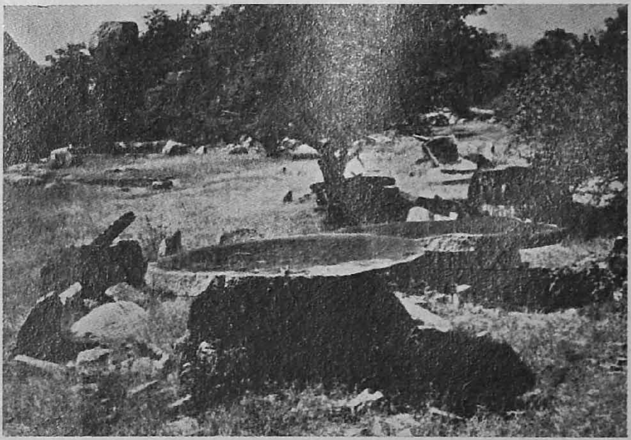
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS



1

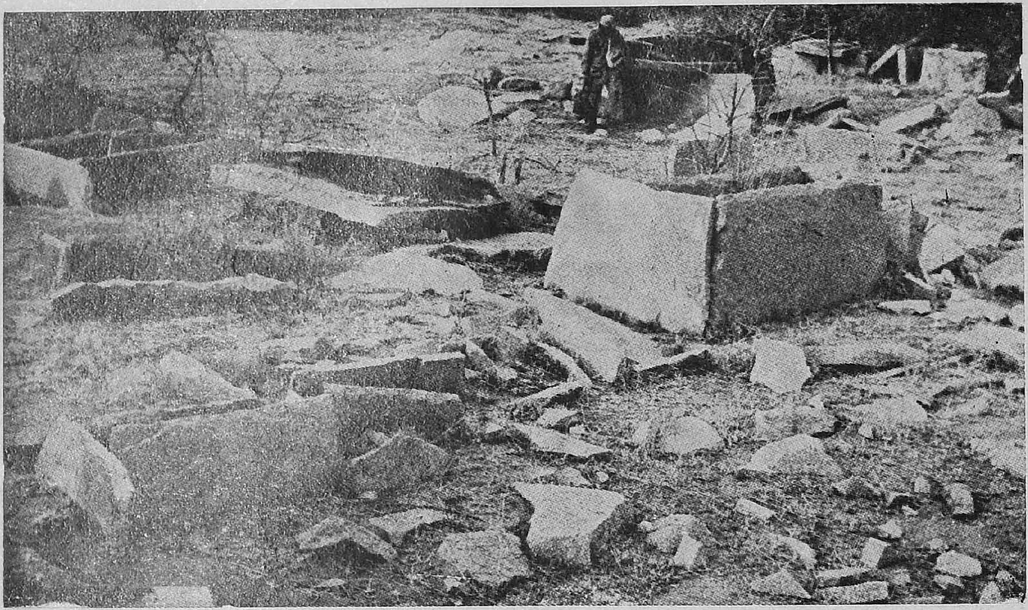
2





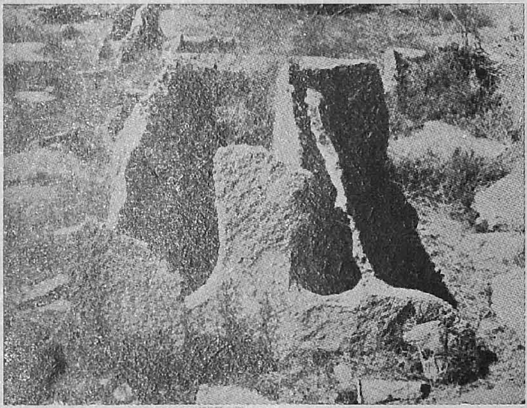
3

PLATE No. XXII :
Port-holed Chambers of the Hire Benkal (1) and Brahmagiri (2, 3) Types

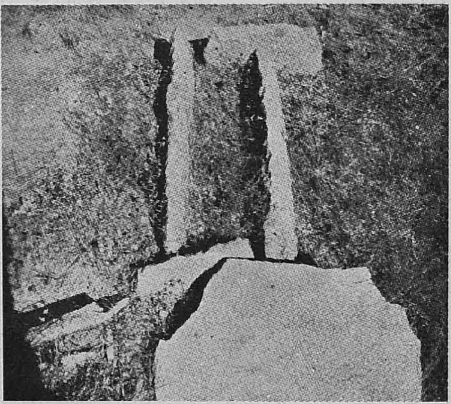


1

3



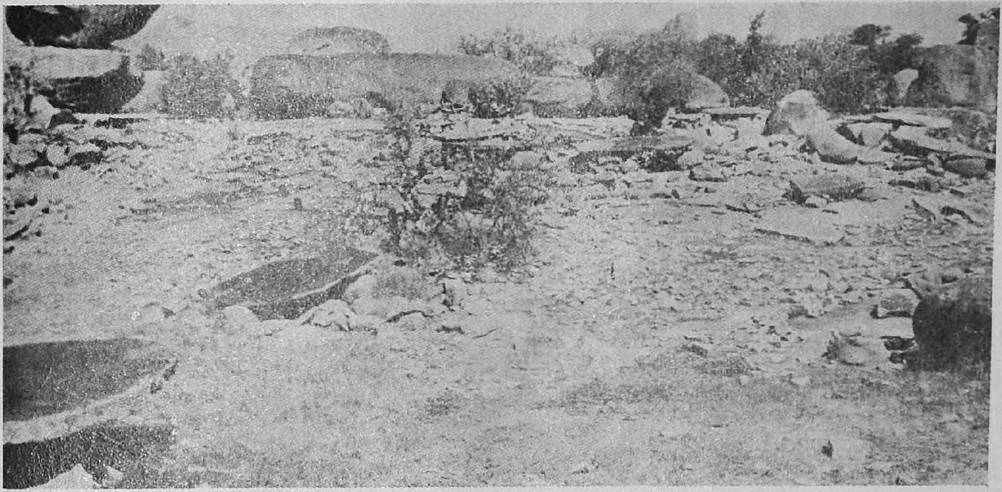
2



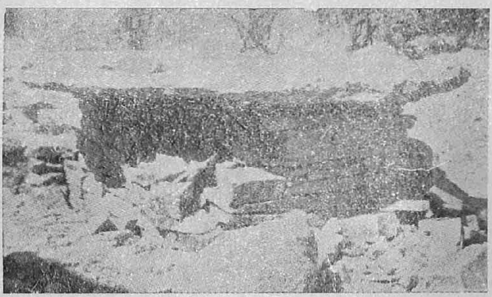
PUBLIC LIBRARY
26 FEB 1975
MADRAS

PLATE No. XXIII : Oblong Cists with or without Port-hole

4

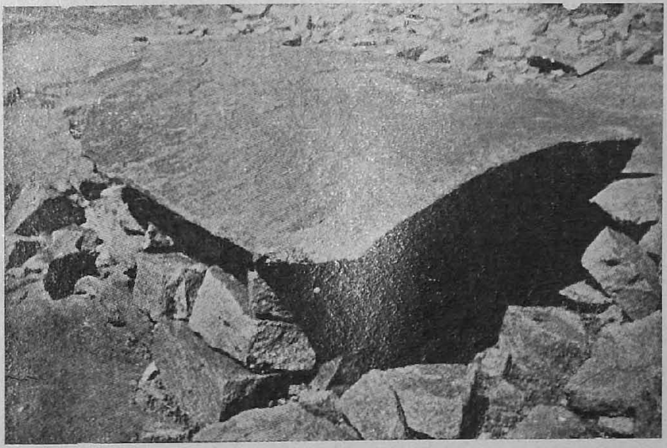


1



2

3

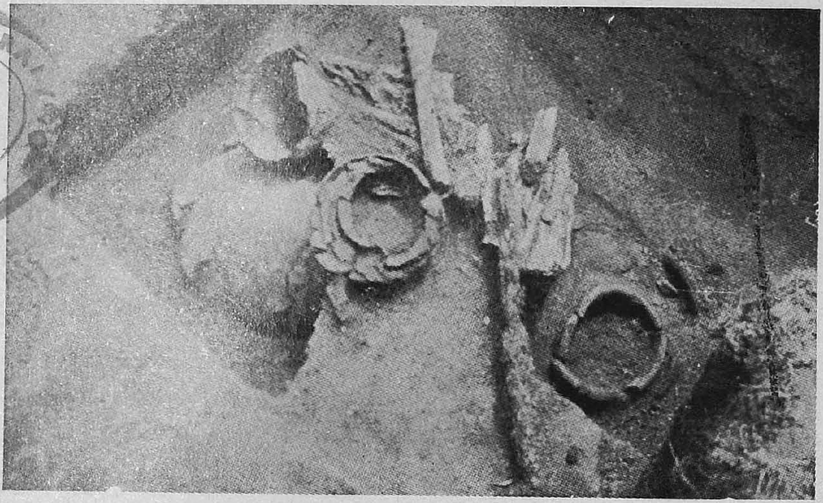


CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

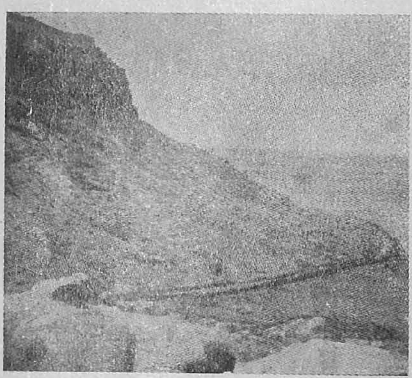
PLATE No. XXIV : Rock Shelters and Irregularly Polygonal Chambers

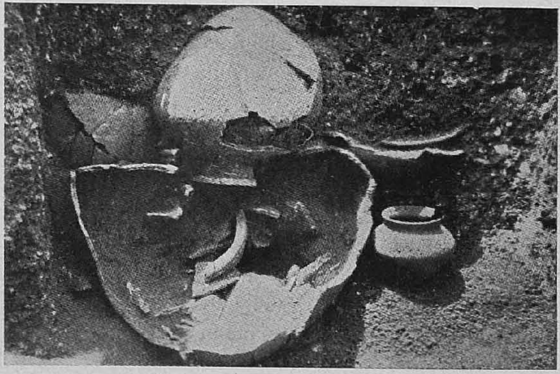
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

2



1



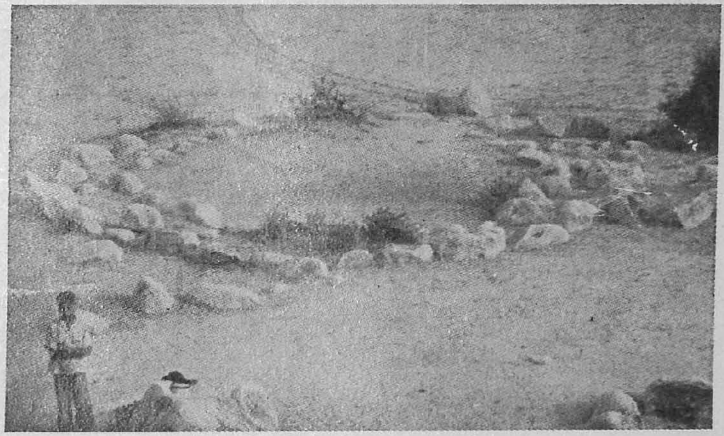


3

4

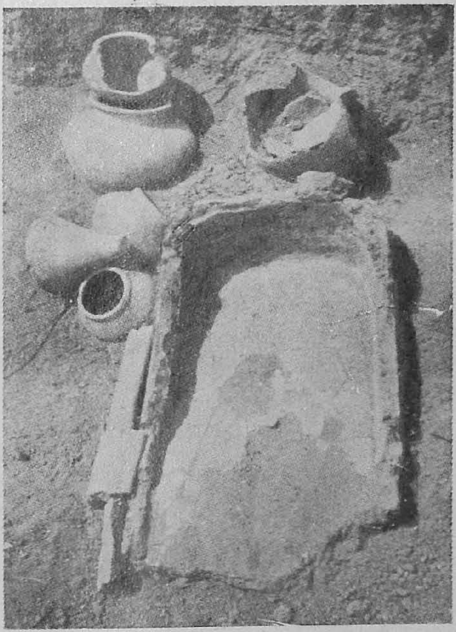
PLATE NO. XXV : Pit-burials. Two of them after Clearance (2, 3)

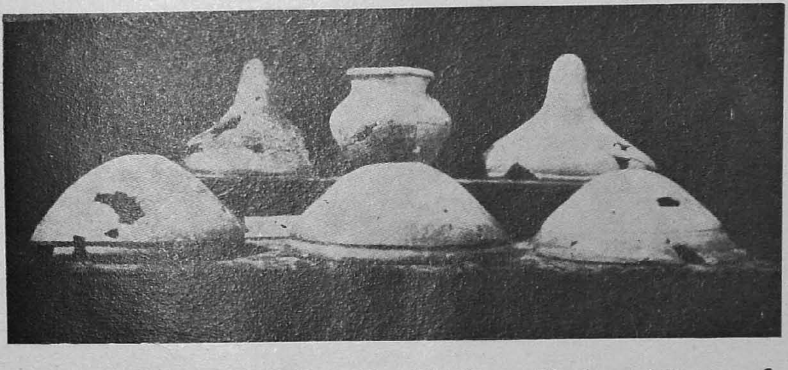
1



CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

2





3

PLATE NO. XXVI : Double Stone Circle and Pottery from Pit-burial and a Round Barrow

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

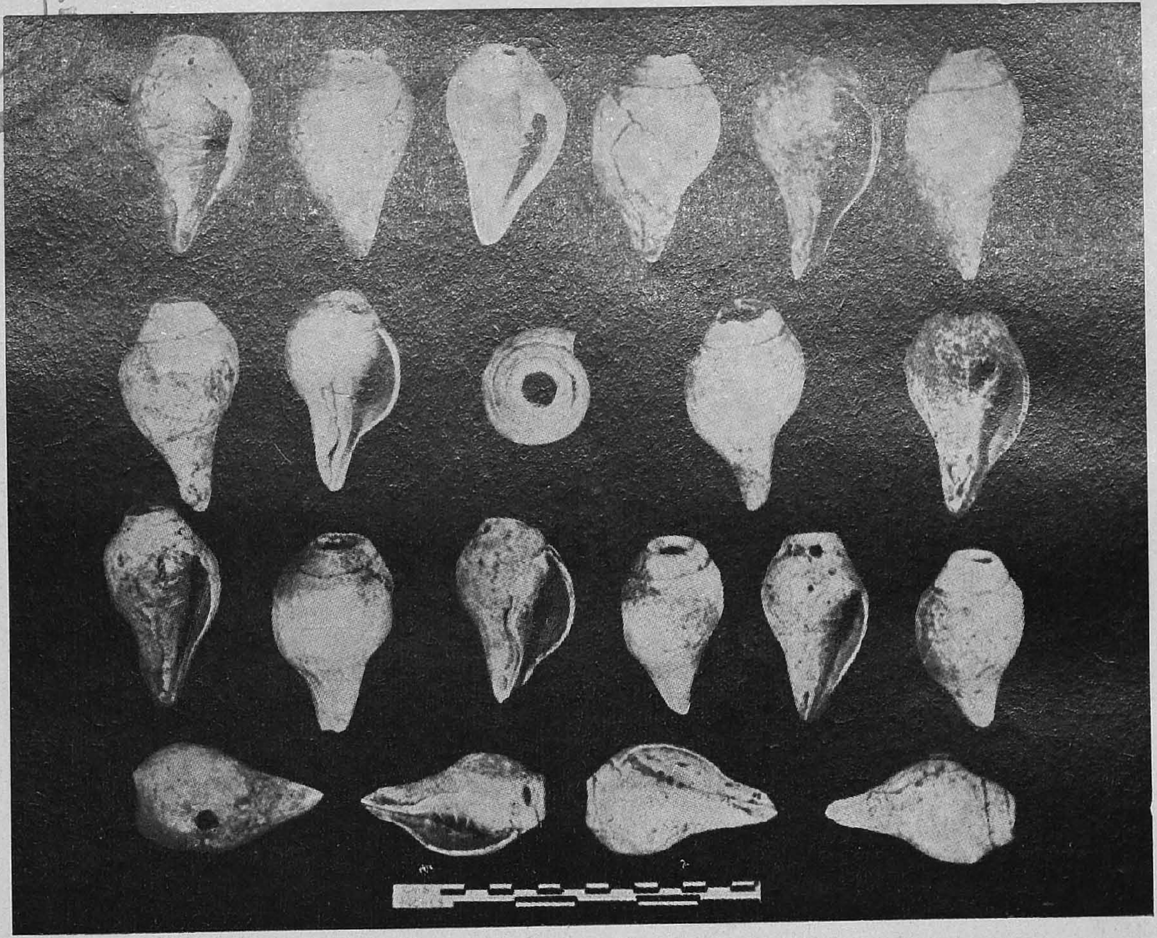
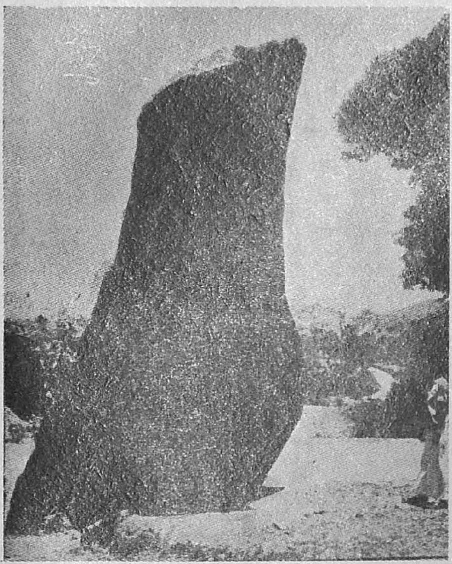


PLATE No. XXVII : Perforated Conch-Shells from a Disturbed Round Barrow

1

PUBLIC LIBRARY
26 FEB 1975
MADRAS



2

3

PLATE No. XXVIII : Stone Alignment and Menhirs

1

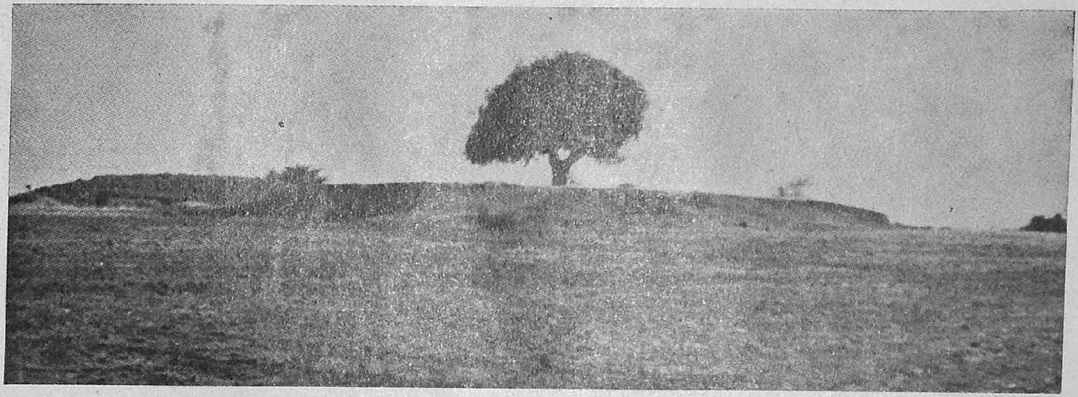
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

2

PLATE No. XXIX : Megalithic Monuments

3

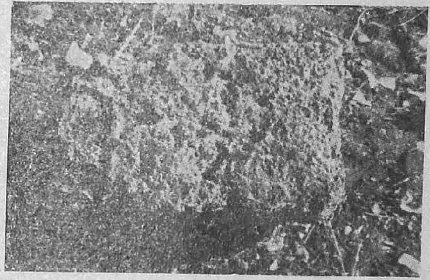
4



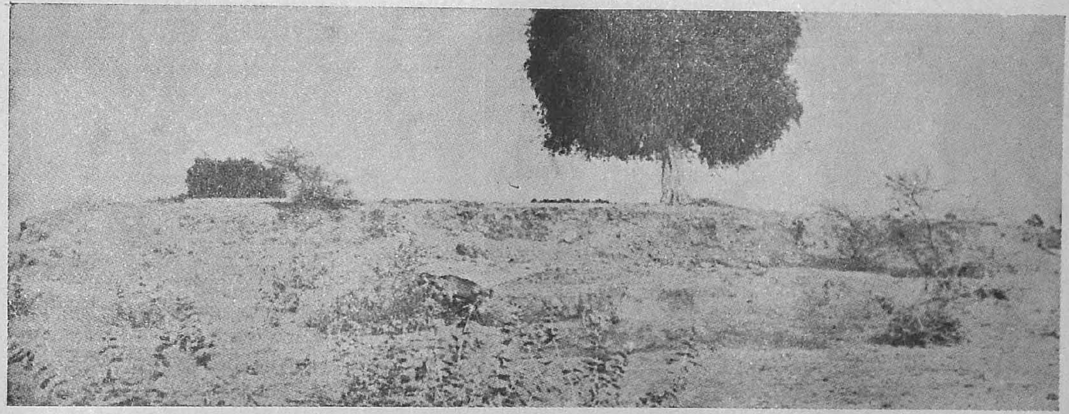
1

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

2

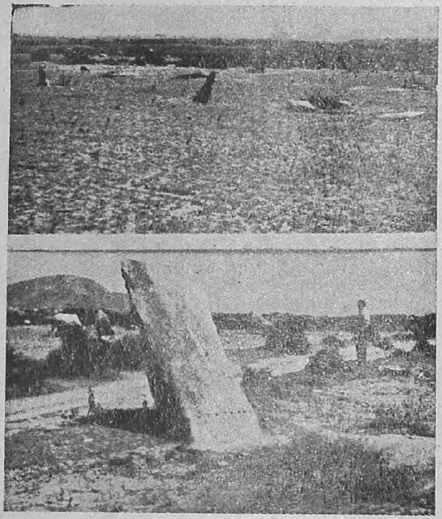


3

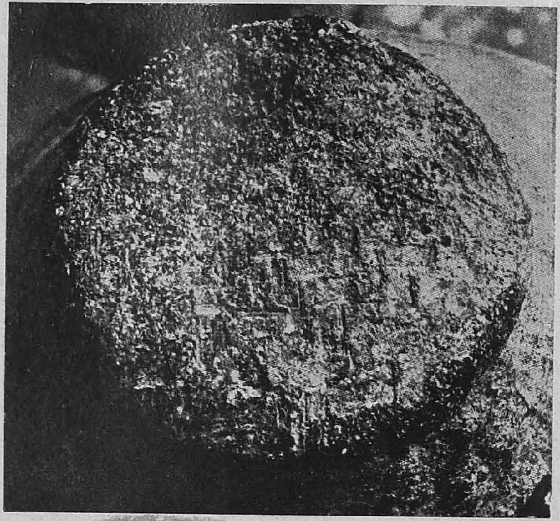


4

PLATE No. XXX : An Ash Mound (1, 3). Well Cut Block of Stones of Disturbed Megalithic Circles (2, 4)

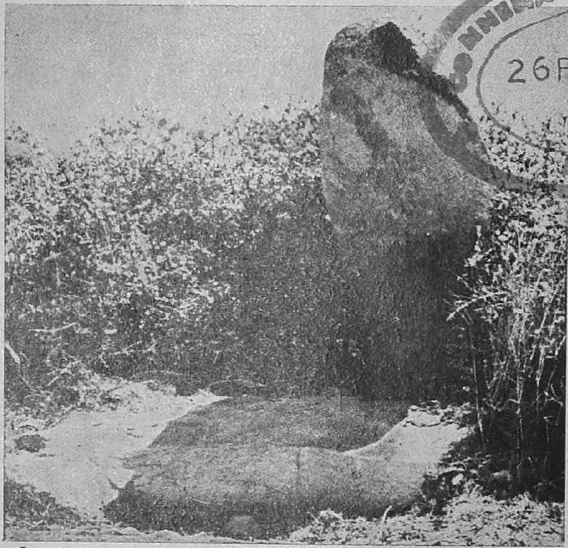


1

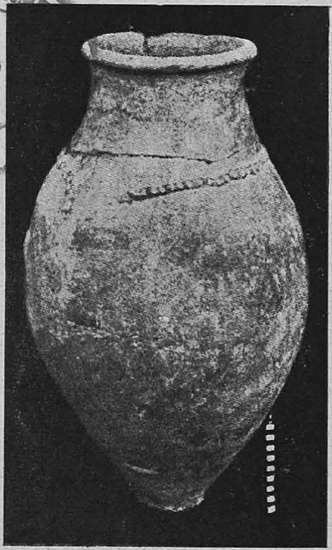


2

PUBLIC LIB
26 FEB 1975
MADRAS



3



4

PLATE No. XXXI : Managondanahalli : 1, 3 Menhirs in the Site. 2, 4. A Thick-Sectioned Urn with Applique Design on the Neck (4) and Mat Impression on the Bottom Exterior (2).

FIGURES

1 FEB 1975

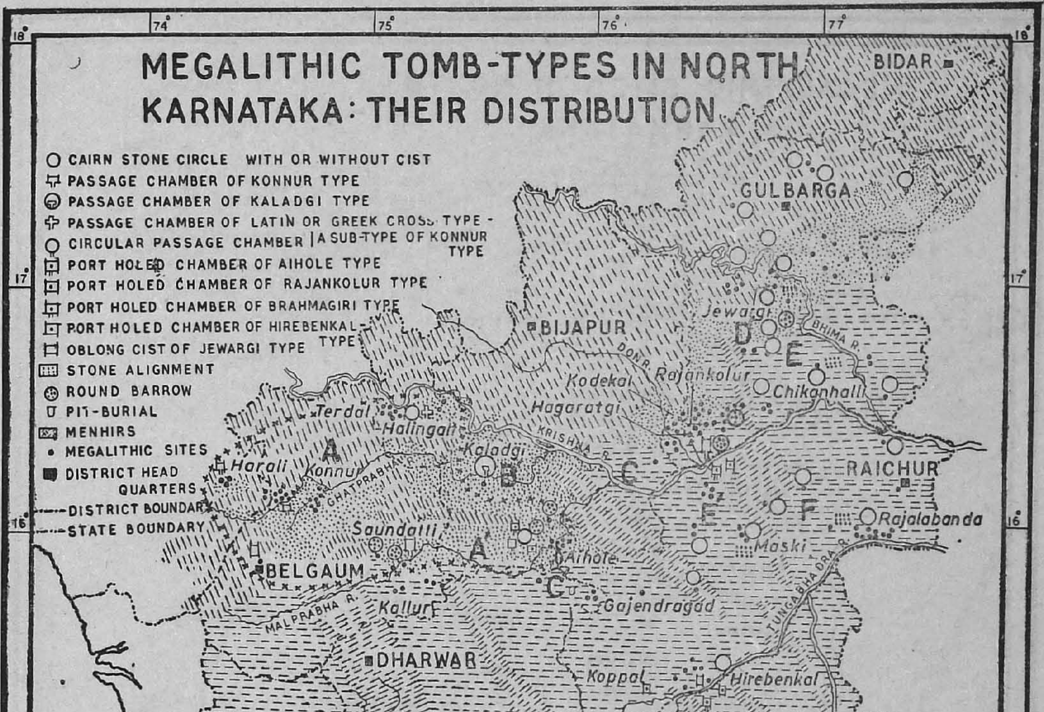


FIGURE 1

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

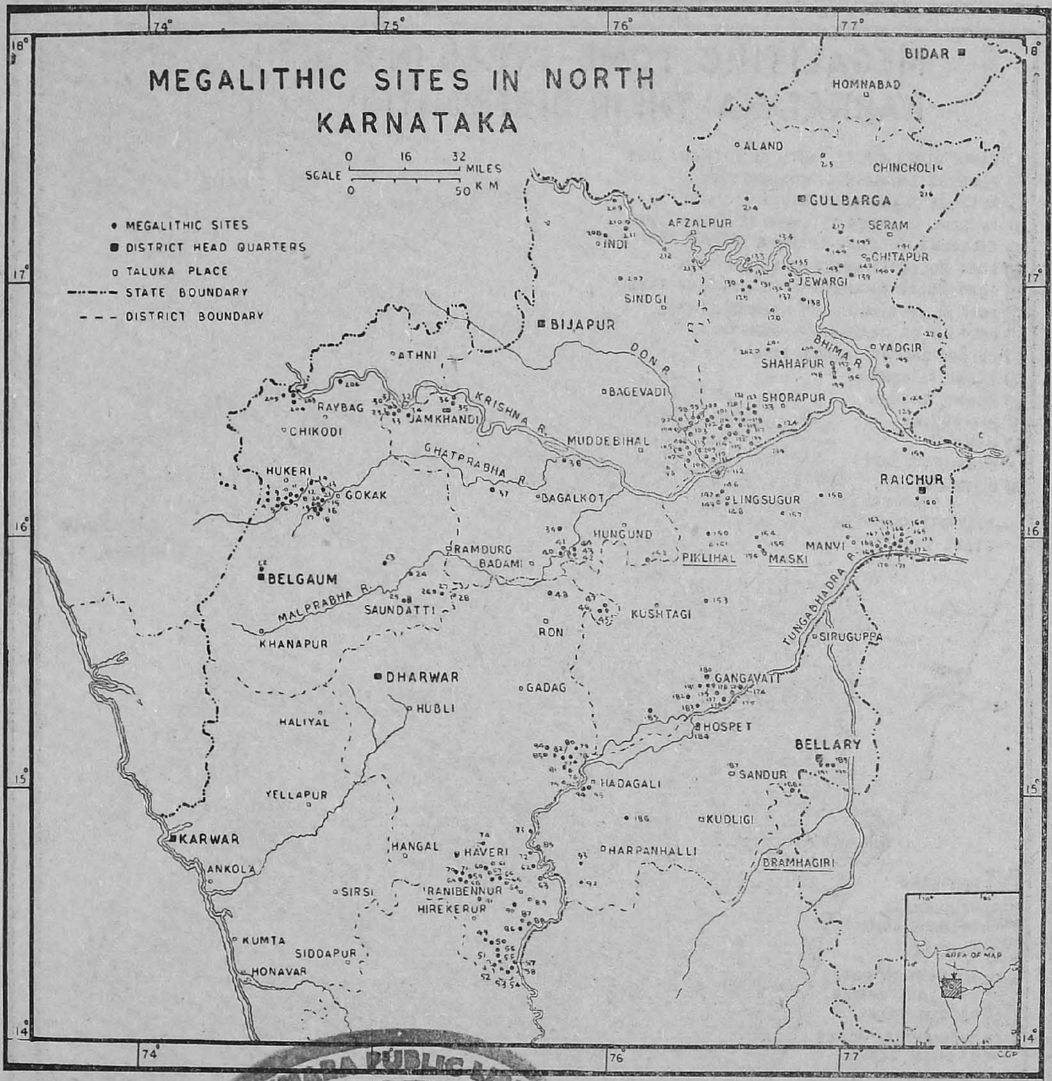


FIGURE 2

...MARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

MADRAS

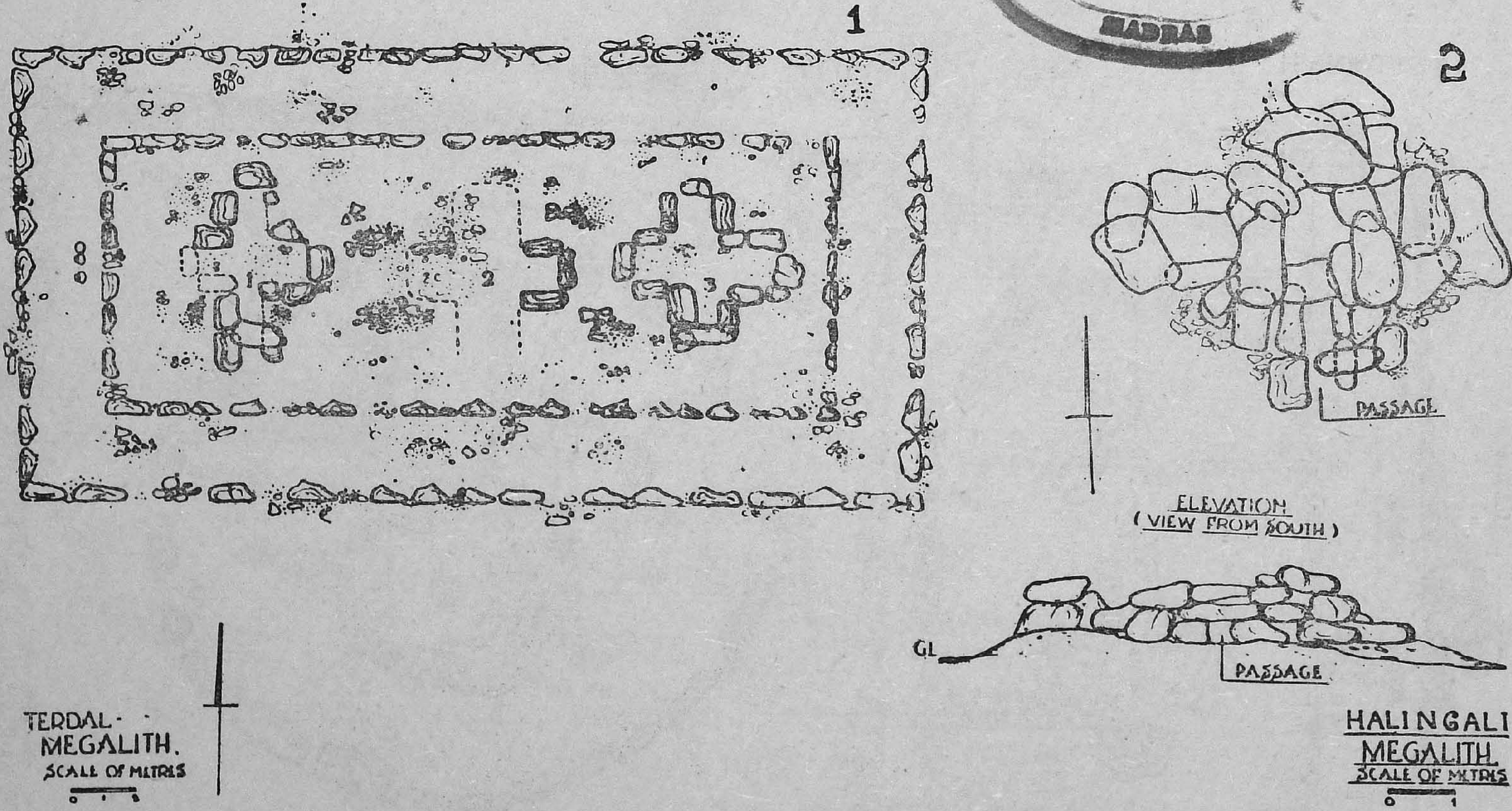


FIGURE 3

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

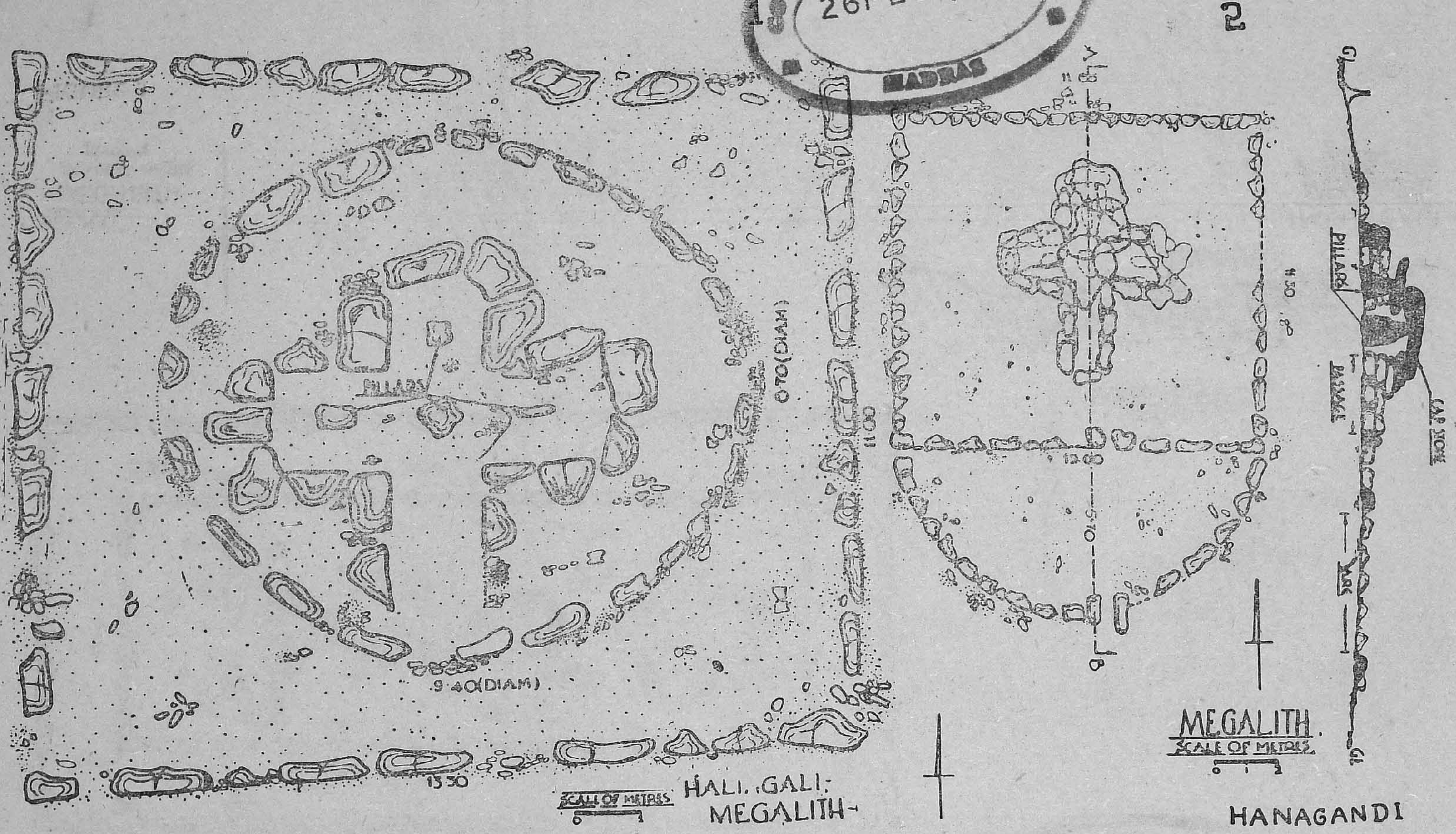
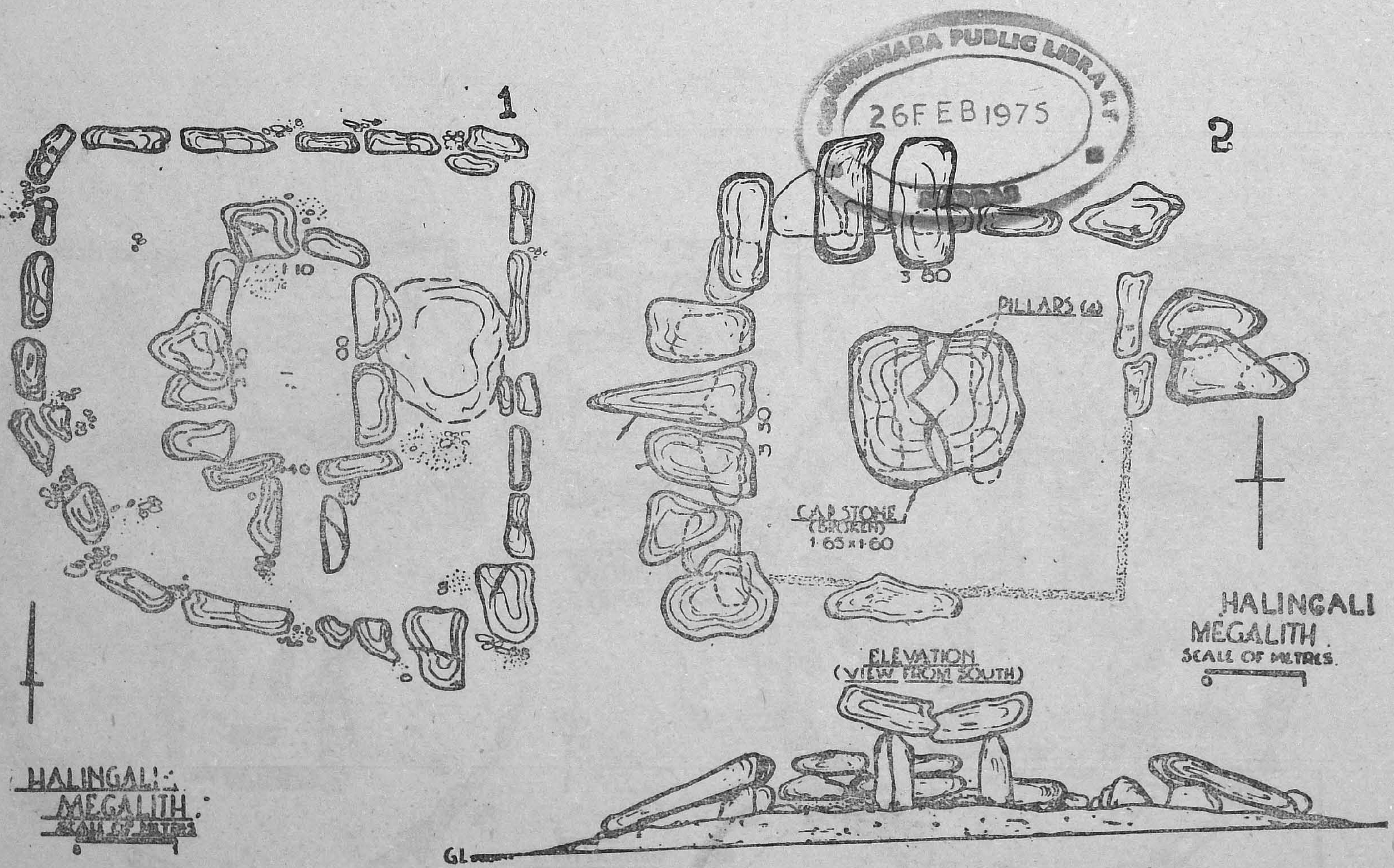
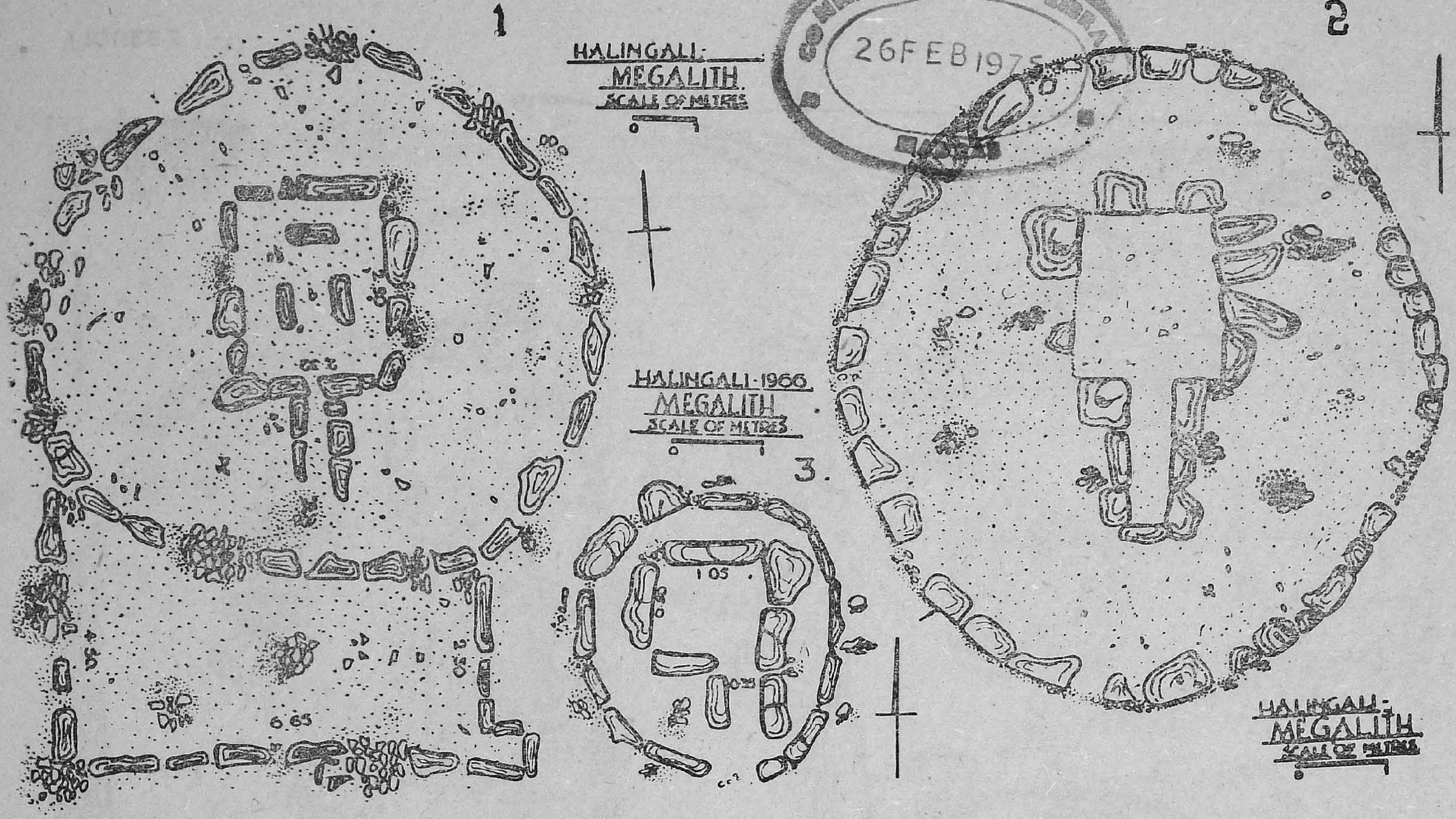


FIGURE 4



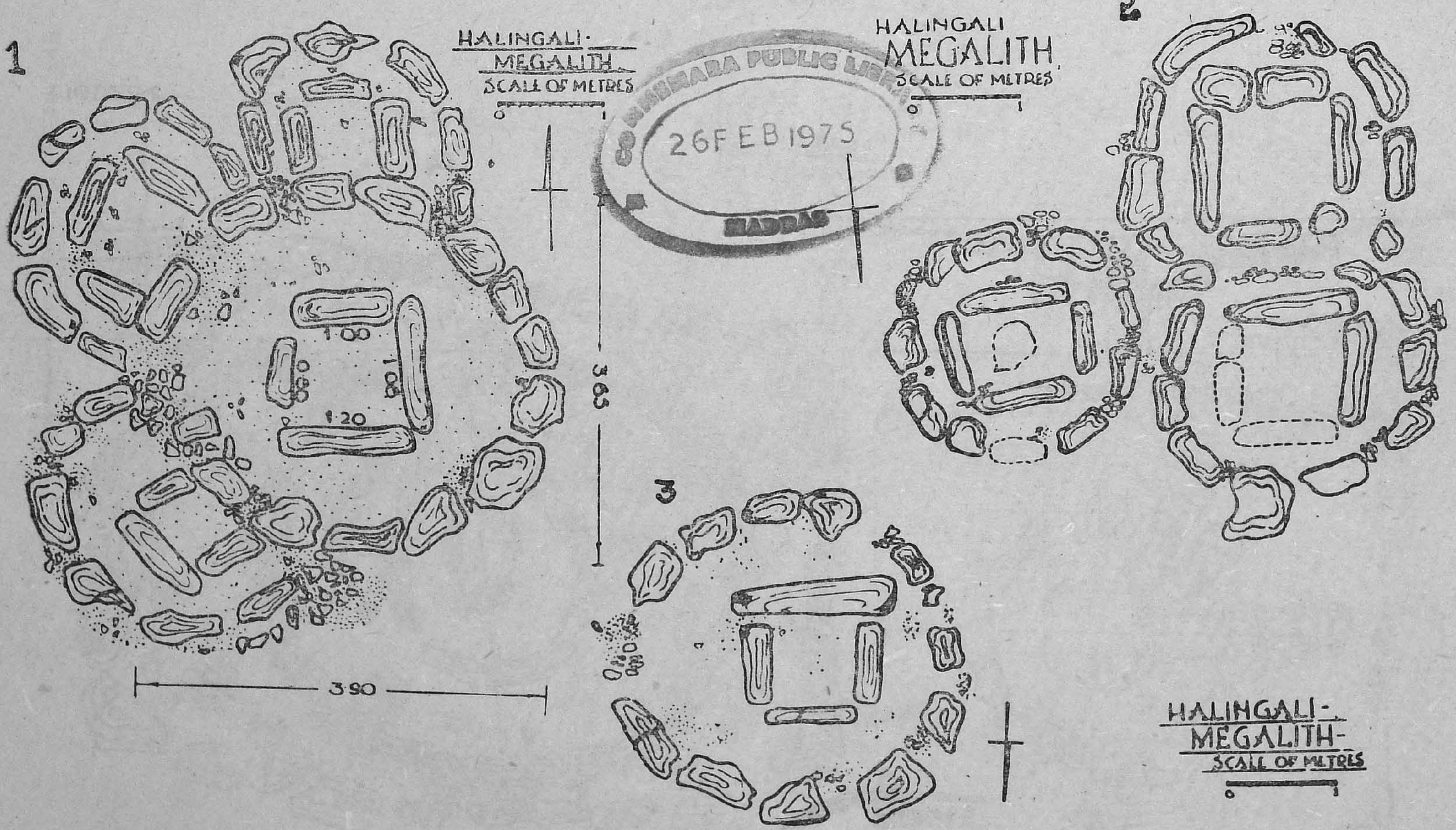
26 FEB 1975

FIGURE 5



CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

FIGURE 6



26 FEB 1975
MADRAS

FIGURE 7

26 FEB 1975

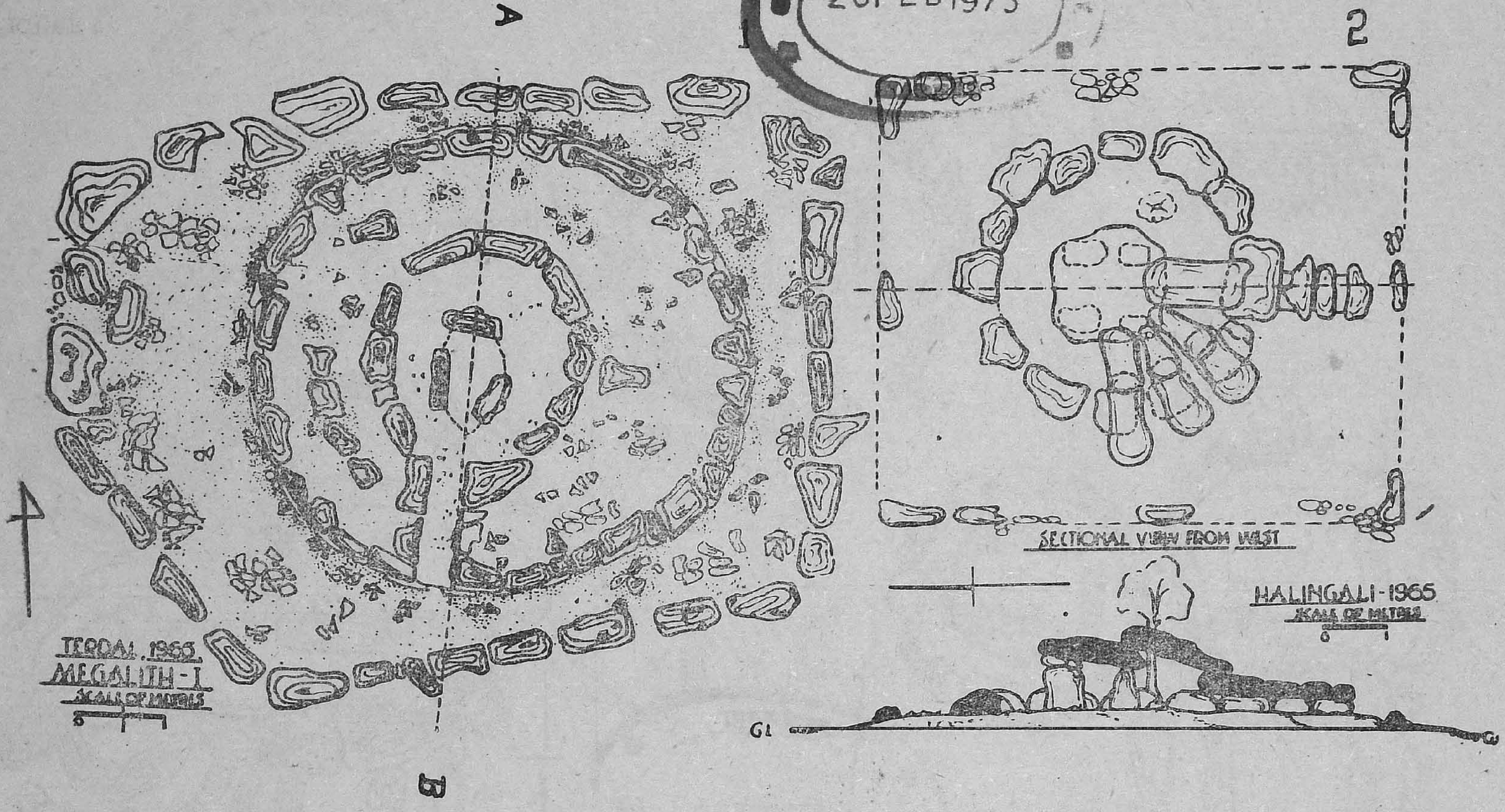


FIGURE 8

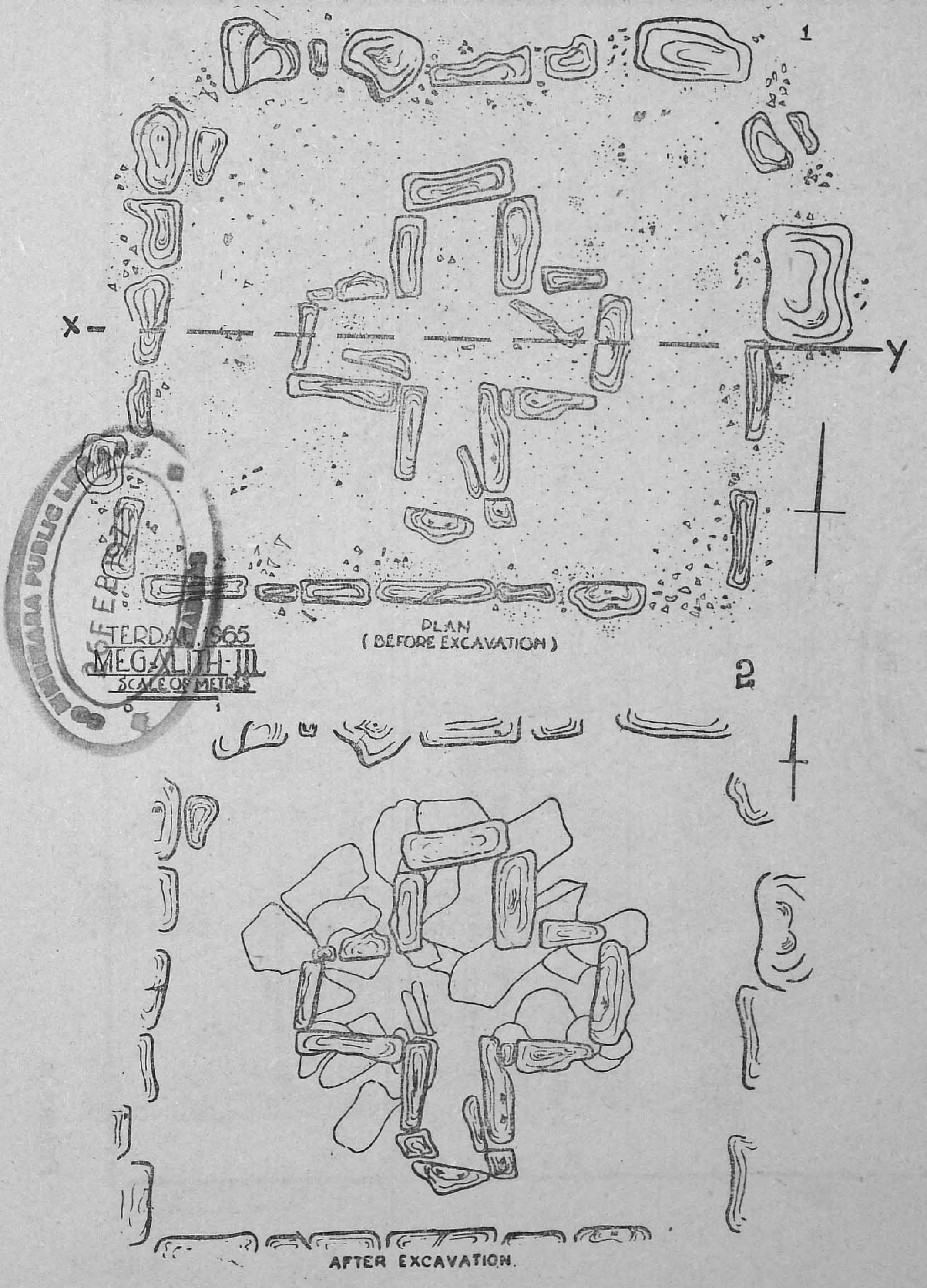

1
X
Y
PLAN
(BEFORE EXCAVATION)
TERDAL 1965
MEGALITH-III
SCALE OF METRES
2
AFTER EXCAVATION.

FIGURE 9

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

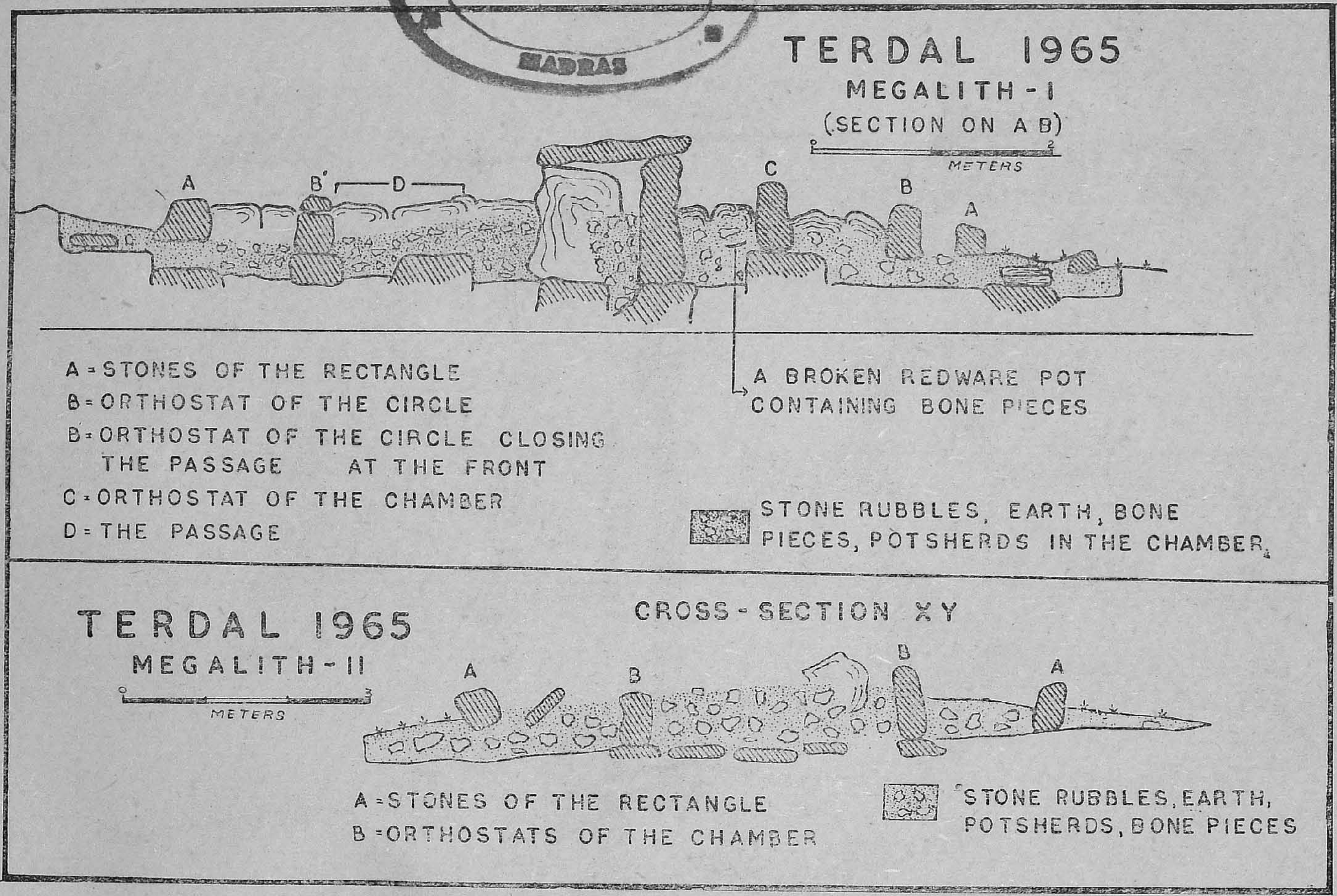
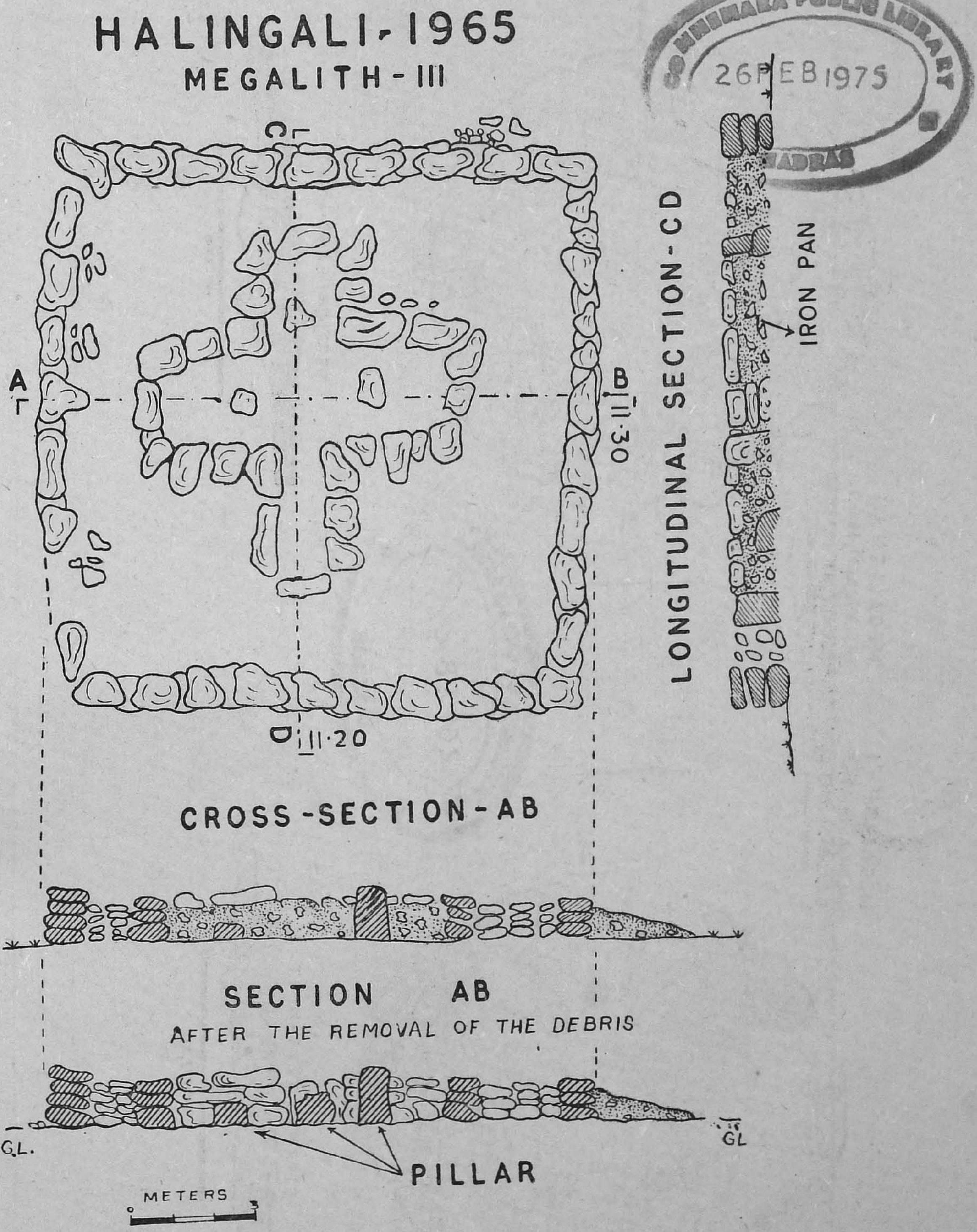
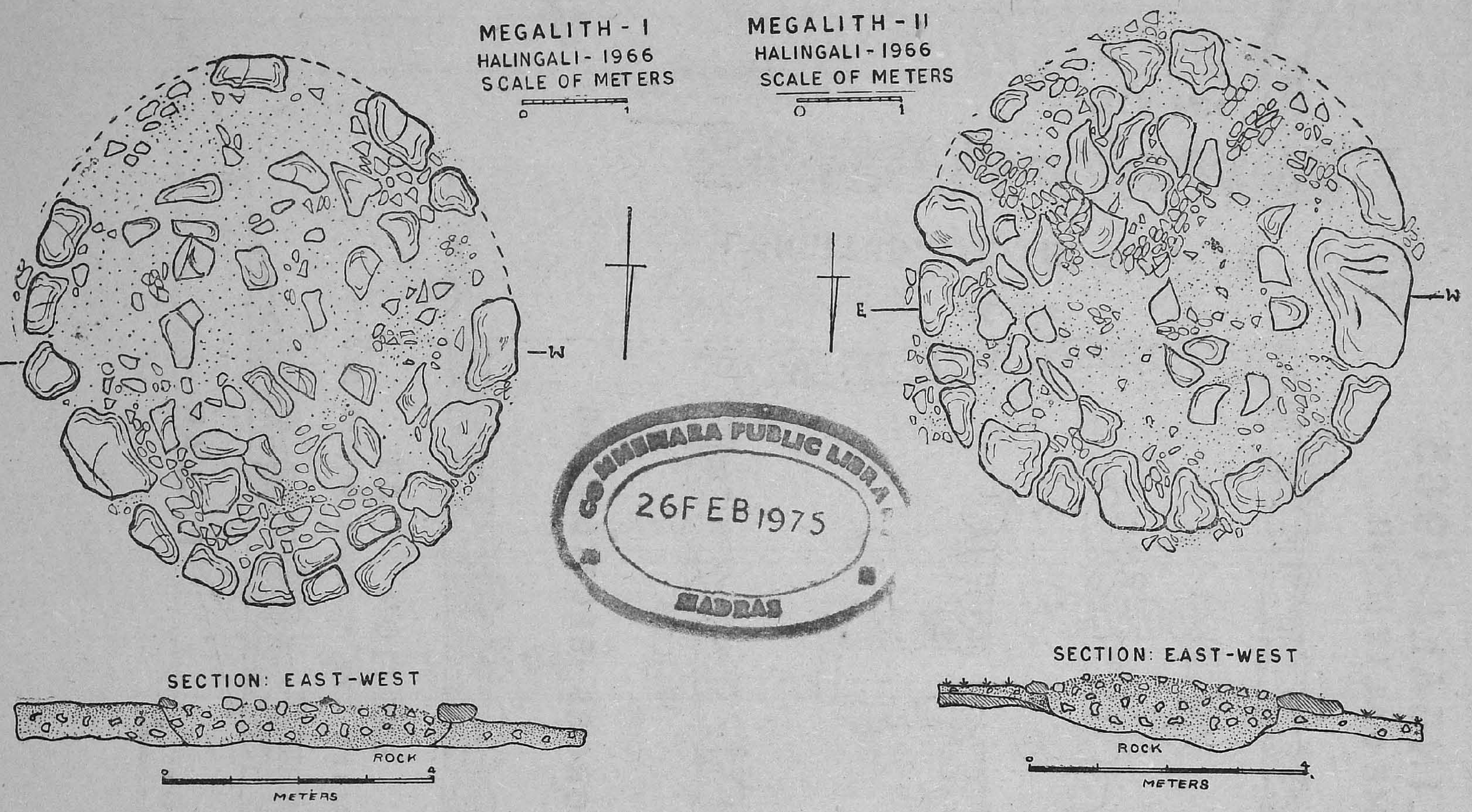


FIGURE 10



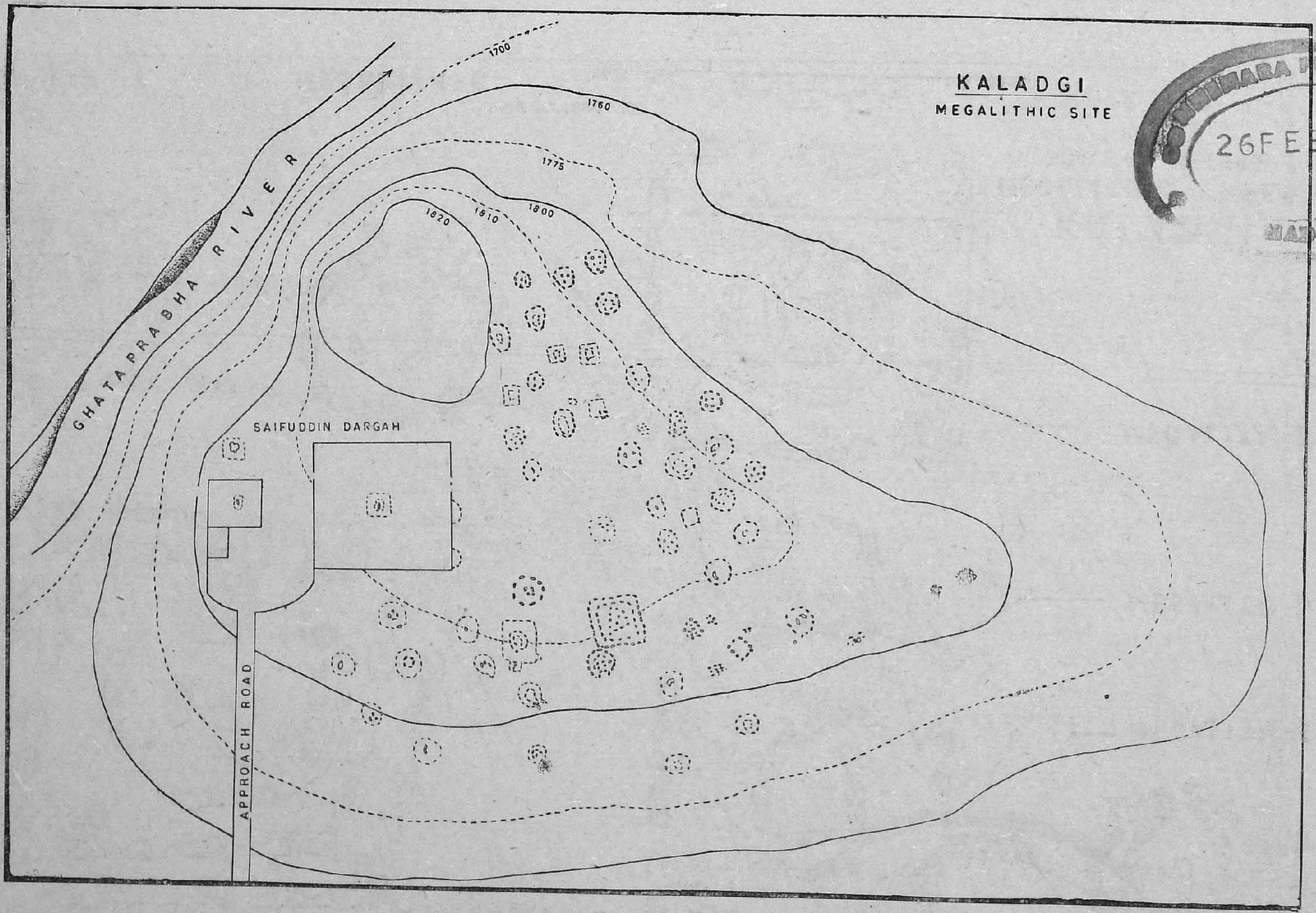
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

FIGURE 11



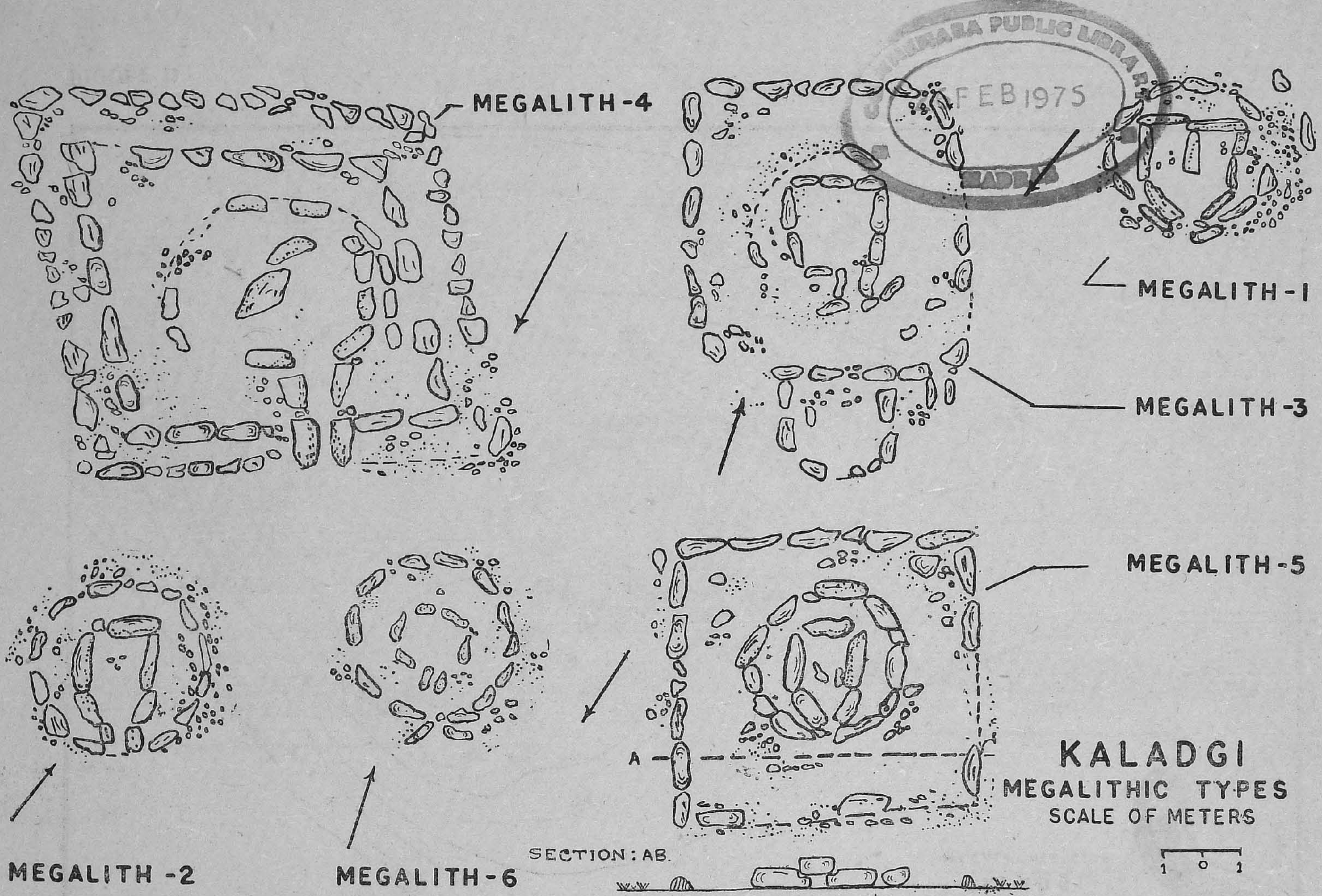
CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

FIGURE 12



PUBLIC LIBRARY
26 FEB 1975
MADRAS

FIGURE 13



FEB 1975

FIGURE 14

26 FEB 1973

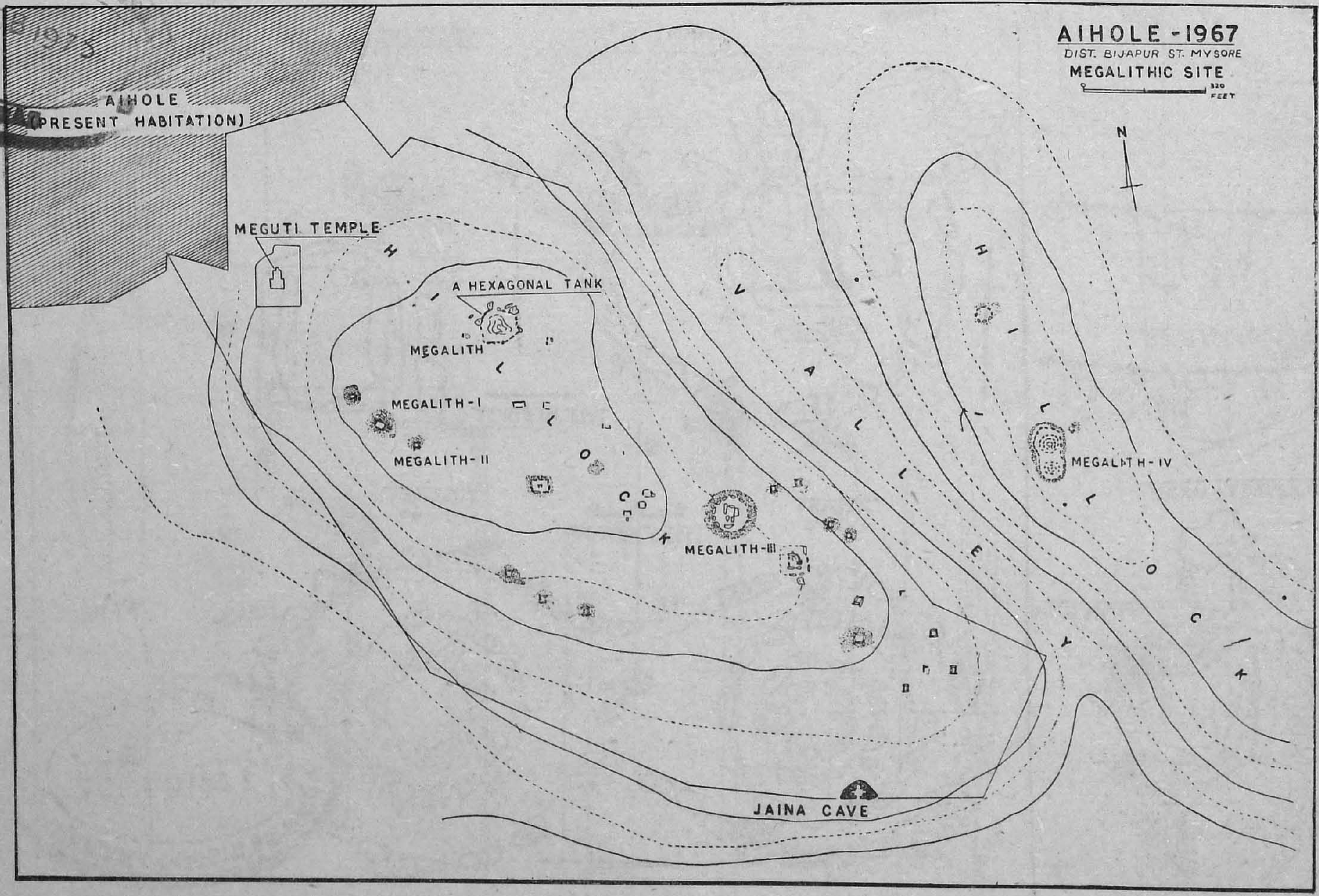


FIGURE 15

CONNEMARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

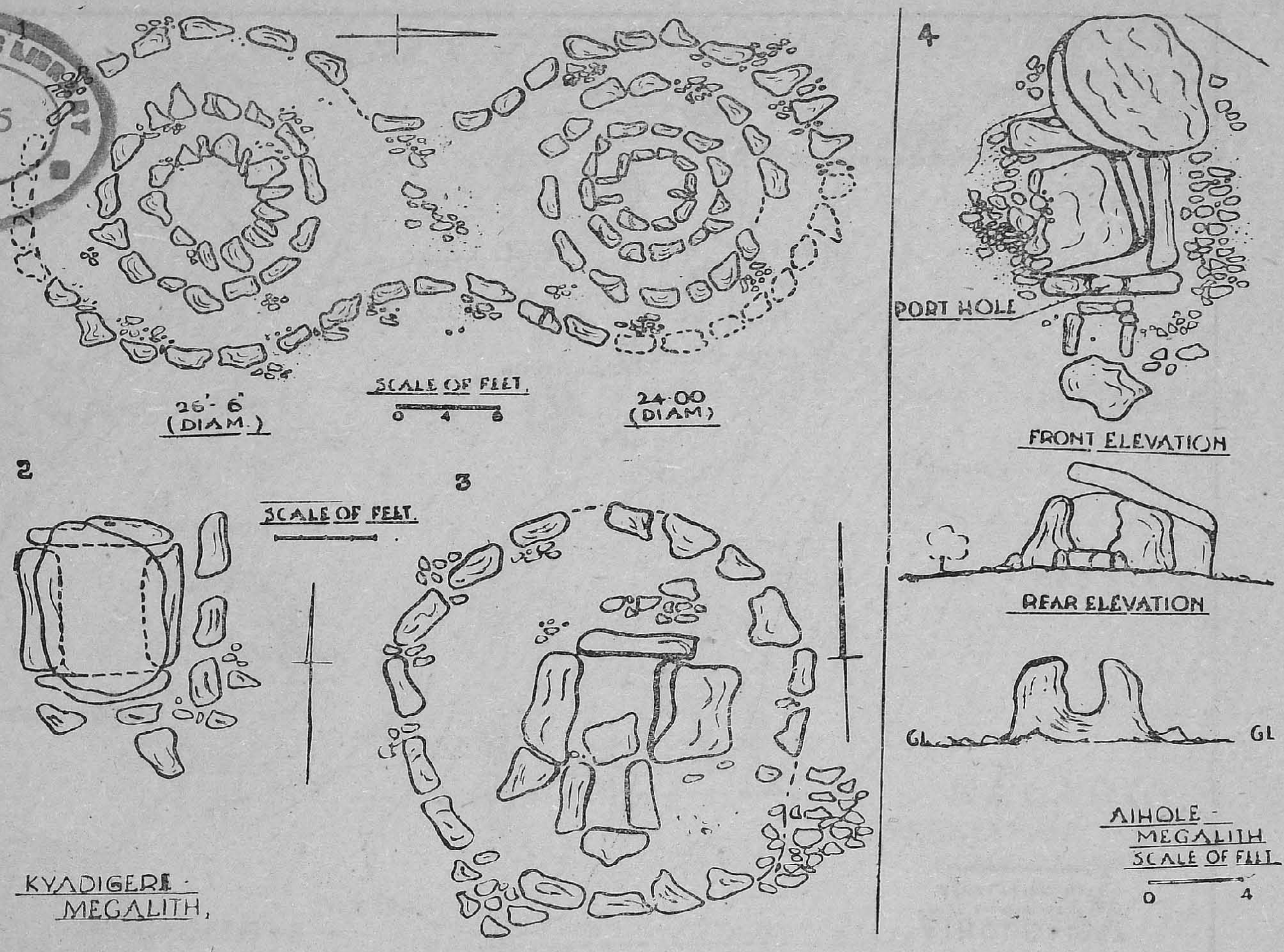
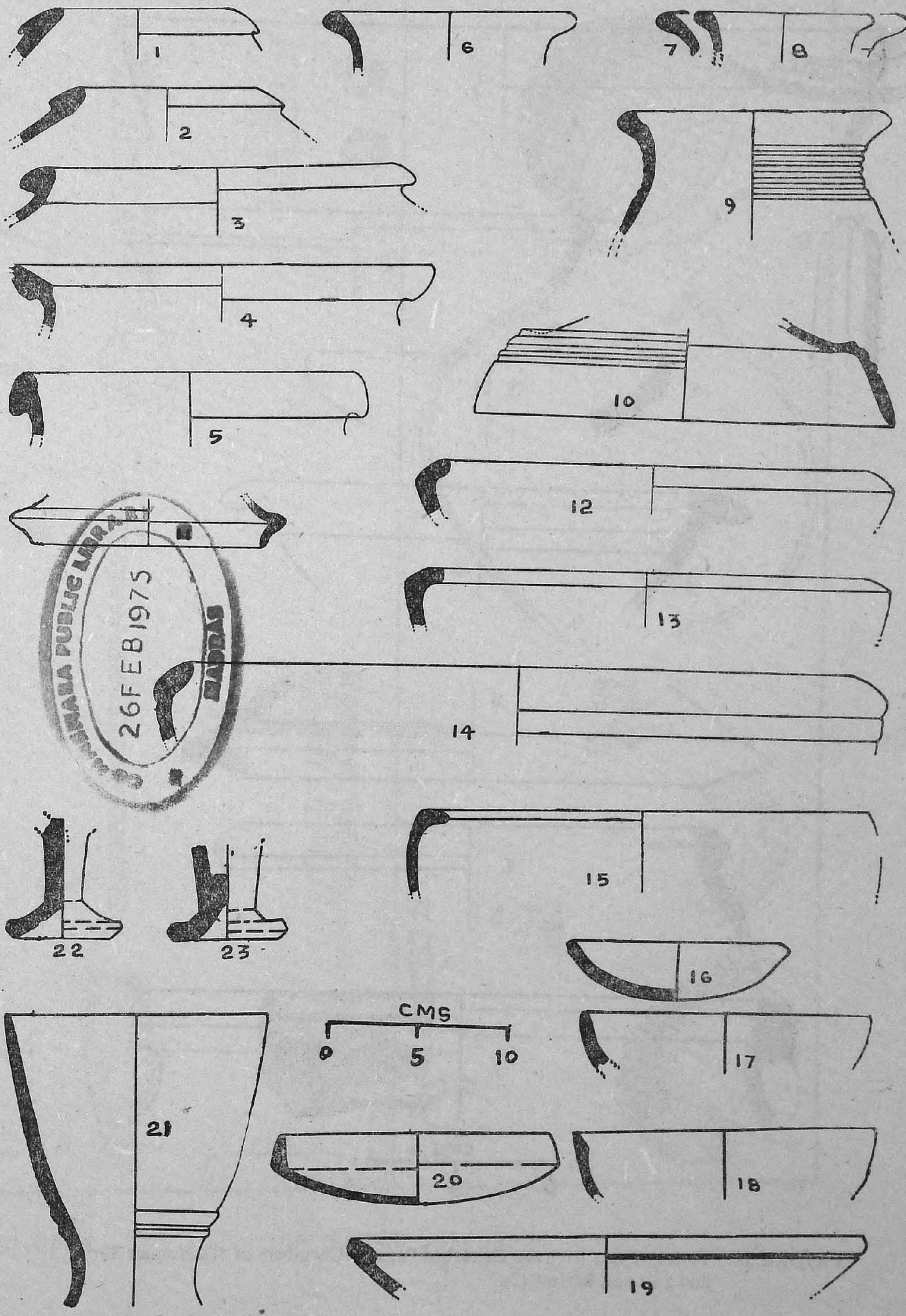


FIGURE 16



MARA PUBLIC LIBRARY
26 FEB 1975
MADRAS

FIGURE 17. HALINGALI : Megalithic pottery from the excavated megalith III.

26 FEB 1975

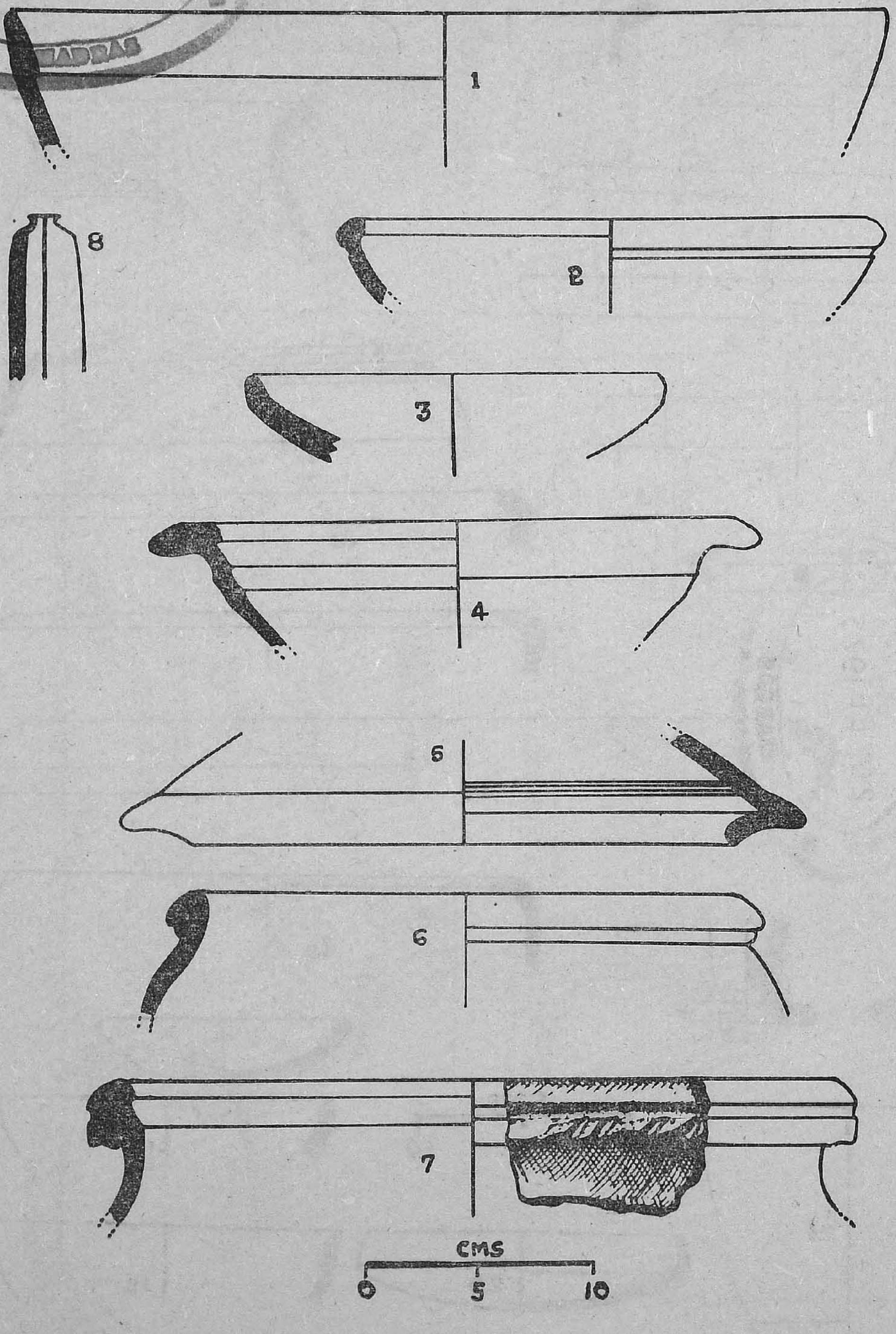
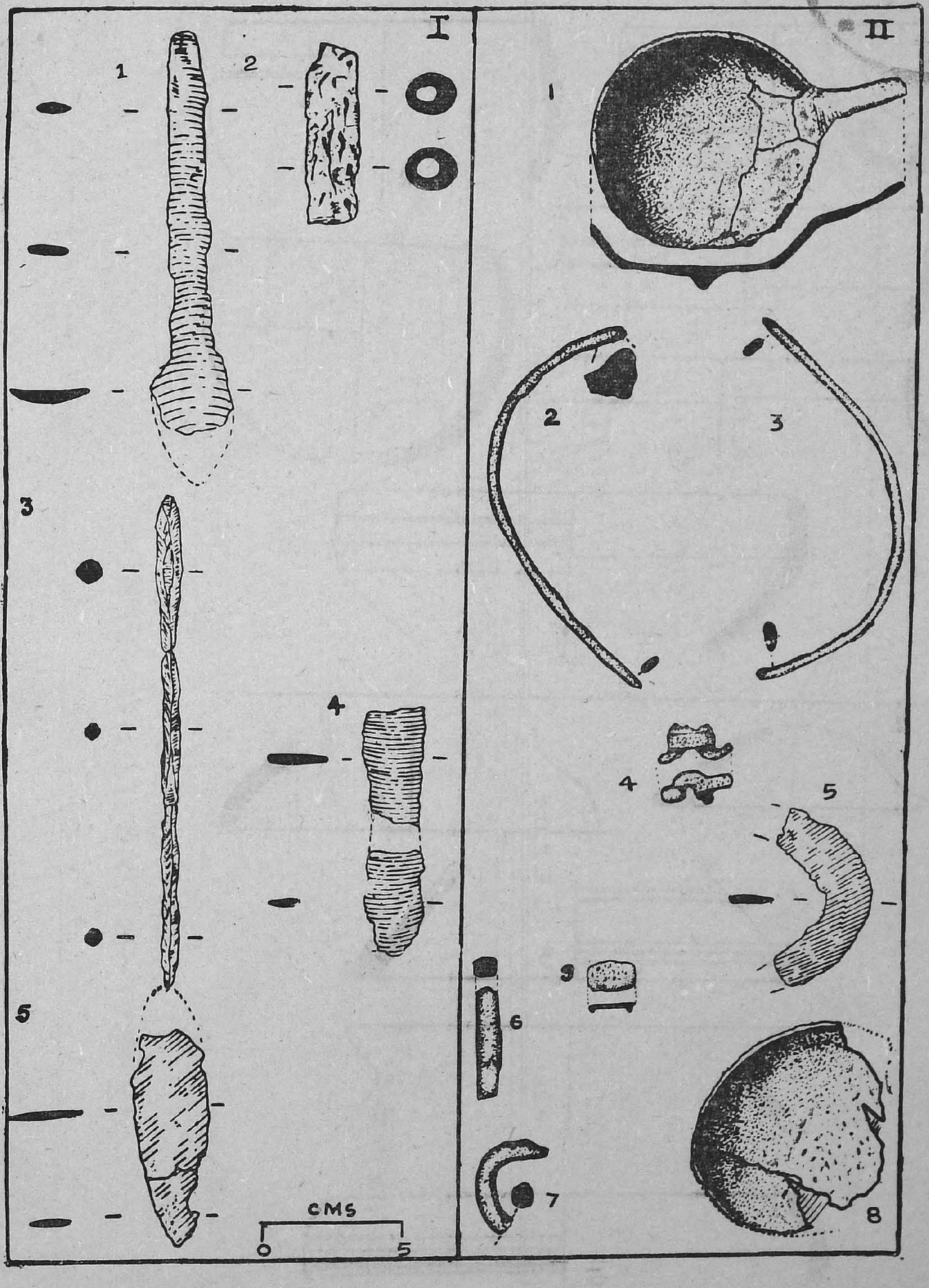


FIGURE 18. Pottery Types from the Disturbed Passage Chambers of the Konnur Type and a Round Barrow (7).



26 FEB 19

FIGURE 19. Iron objects from the Megaliths

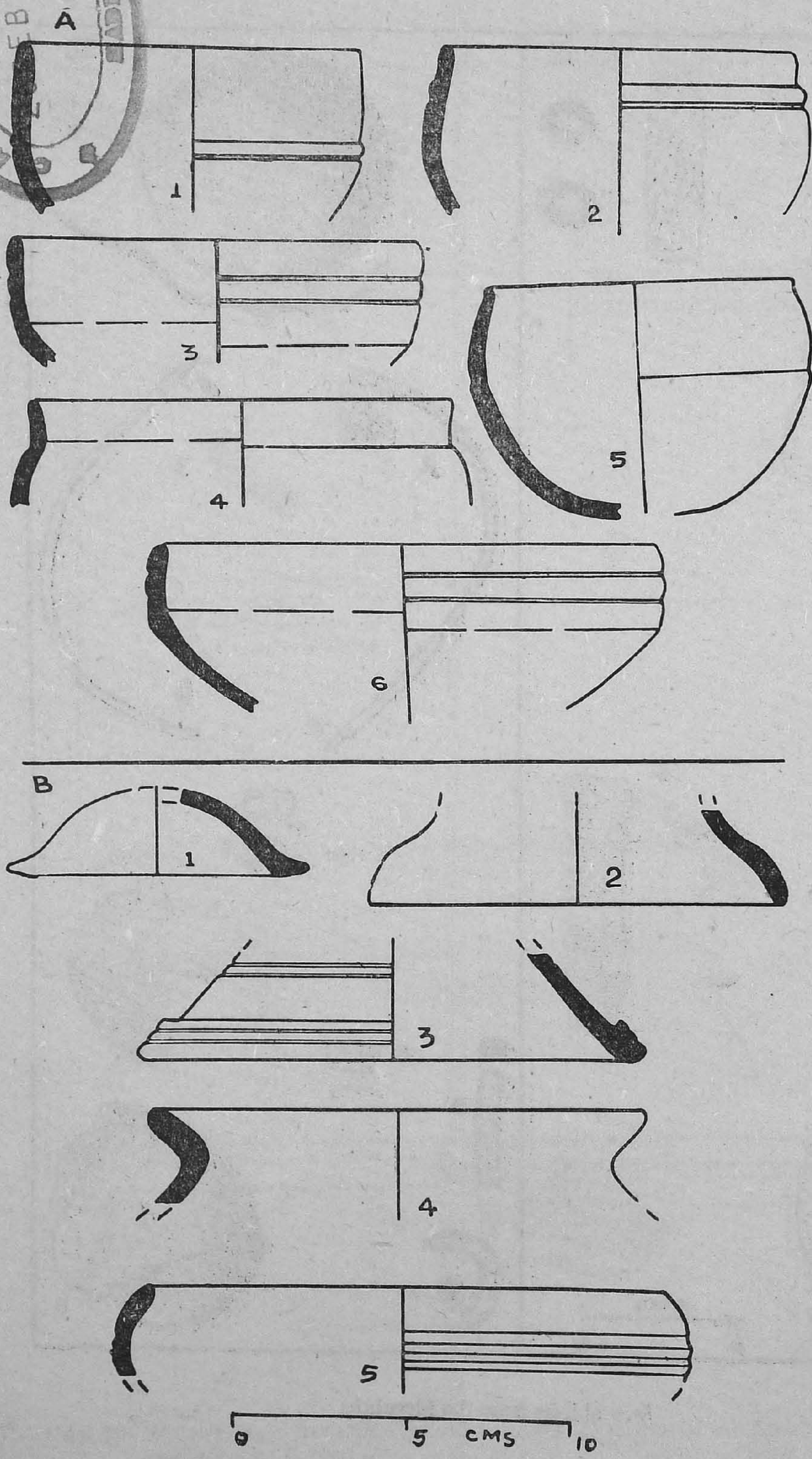


FIGURE 20. Megalithic pottery from the chalcolithic sites.

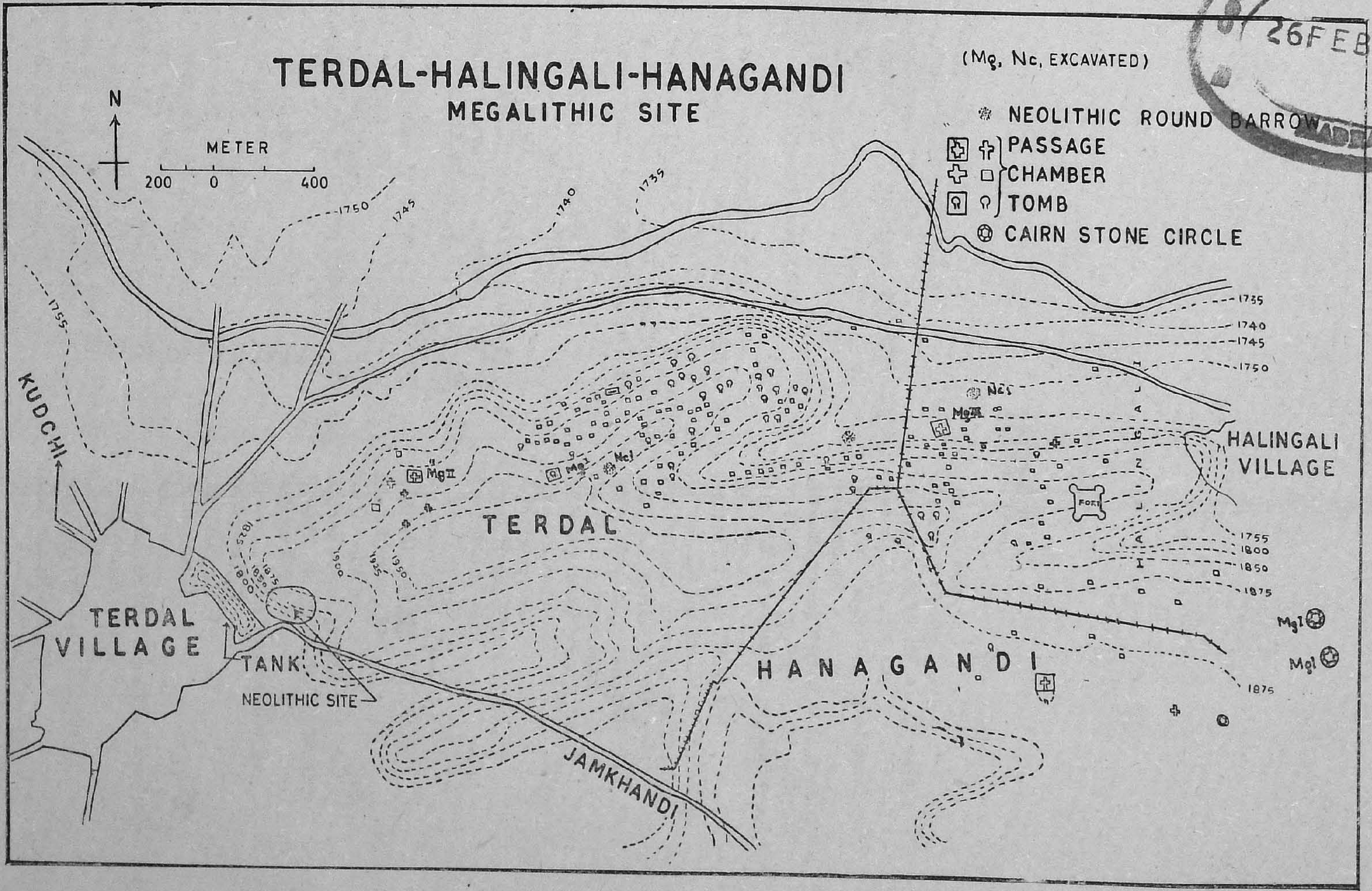


FIGURE 21

26 FEB 1975
MADRAS

INDEX

ADDAGUPPA, 70, 140
Adichanallur, 4, 144, 177, 187, 188
Agra area megaliths, 147
Aihole megaliths, 6, 10, 16, 17, 23, 30-6, 50, 54, 157-8, 165
  Hexagonal tank, 35-6
  Location, 30-1
  Rock materials and dressing, 36
  Sites, 31-2
  Stone anthropomorphic figures, 36
  Types, 32-6 ; Chambers with or without port-hole, 32, 33-5, 51, 53, 55, 111 ; Passage chambers, 16, 32-3, 150, 157 ; Port-holed dolmens, 8, 16, 160-1, 162-3 ; Round barrows, 32, 35 ; Stone-circles, 32, 35
Ainapur, 17, 22
Aiyappan, A., 145, 188, 198
Akkargal, 16, 31, 34
Alagan Maradi, 67
Alexander, Rea, 4, 109, 140, 143, 144, 177
Allahabad-Varanasi area megaliths, 147
Allchin, F.R., 12, 64, 68, 72, 82, 86, 95, 133, 175, 185, 195
Alphonso, Reisenfold, 3, 148
Amaravati tank, 129
Anantapur, 64, 70, 140
Andhra Pradesh, 9, 12, 70, 140, 144, 145, 146, 147, 152, 179
Andola, 57, 58, 60, 112
Andola excavations
  Cairn No. 1, 119-20, 169
  Cairn No. 2, 120
Andola megaliths, 142, 168
Anegondi, 180, 186,
Anegudda, 78
Anera Venkanna's Field, 67
Anglade, A., 140, 141, 147, 172, 188
Anjanad valley megaliths, 141, 160
Ankana Kollaḍa Ḫola, 129, 155
Ankola port, 9
Annamalai Hills, 143, 167
Annigeri, A.M., 26, 43, 44, 46, 156
Ansari, Z.D., 95, 172
Anthropological Survey of India, 187
Arabian sea, 9, 11, 12
Archaeological Survey of India, 5, 6, 34, 43, 51, 71, 80, 91, 95, 96, 97, 138, 144, 147
Arehalli Beluvanakudige Kajekaru, 160
Art, 222-3
Aryara Moriya Gudi, 55
Asangi, 16, 17, 26
Ash Mounds excavations, 178
Asia, South-East, 3, 148
Asia, Western, 3, 148, 152, 154
Asoka, Emperor, 186
  Minor Rock edict 1, 78
Atharva Veda, 224
Atlantic region, 5
Aurel, Stein, 190
Avathihalli, 141
Avebury megaliths, 152
Avening Tomb, 151
BIBINGTON, J., 3
Bachangudda, 30
Bachimatti, 86
Badahawan megaliths, 147
Badami, 10, 15, 24, 30, 86, 87, 180
Badami Chalukya, 10
Badami Chalukyan Temples, 30
Badkundri, 21
Bagalkot, 15, 37
Bailhongal, 24
Baluchistan, 148
Banaras Hindu University, Seminar on Indian Megaliths (1958), 5
Banas, 132
Banavali, 141, 145
Bandapanhalli, 50, 57

Banerjee, N.R., 5, 138, 139, 148, 151, 155, 172, 177, 188, 189, 190, 191, 192, 193, 198, 217, 223
Bangalore, 140, 141, 146, 172
Banimila-Behera, 147
Bayalu Hanamaooana Holo, 129
Bazognes-en-Pareds, 149
Beek, Horace, 198
Belgaum, 7, 9, 11, 12, 15, 17, 24, 63, 91
Bell, Dr., 179
Bellandur, 141
Bellary, 64, 70, 95
Bellary district, 6, 7, 42, 44, 46, 63, 64, 70, 164
Bellatti, 78
Belsettihal, 52
Beluvankudige, 141
Benkanhalli, 44, 47
Benkotgi, 91
Bhairavanpada, 43, 45, 48, 111, 157
Bhatkal port, 9
Bhavani, 143
Bhima river, 11, 12, 49, 57, 58, 64, 91, 92, 144, 145, 154, 174, 178
Bhima series megaliths, 10, 15, 42, 48, 49-62, 63, 155
  Environment, 49-50
  Hagartgi group, 50, 52-4
  Jewargi group, 50, 57-62
  Rajankolur group, 50, 54-7
  Sites, 50-2
  Talikot group, 50-2
  Types, 50-62
Bibby, T.G., 148, 152, 186
Bidar district, 9
Bijapur district, 6, 7, 9, 15, 27, 37, 49, 50, 63, 91
Bilabhavi, 166
Billamarayana Gudda, 65
Bison Valley, 141, 147, 160
Bombay State, 9
Boswell, J.A., 4, 172
Brahmagiri excavations, 4, 5, 6, 65, 111
Brahmagiri megaliths, 70, 71, 74, 79, 80, 90, 98, 112, 123, 124, 128, 130, 132, 133, 146, 147, 151
  Chronology, 128
Brampalla, 71
Branfill, B.R., 140, 141, 142, 172
Breeks, J.W., 4, 141
British Isles megaliths, 149, 150, 151, 152
Brittany megaliths, 152
Budapanhalli, 43, 44
Burges, James, 6, 8, 16, 30, 96
Burial modes, 168-71
  Inhuman contains, 168
  Post-cremation burials, 170-1
Burial practices, 223-4
Byadgi, 44, 45, 47

CABO MONDEGO TOMB, 149
Cammiade, L.A., 198
Campbell, J.M., 16
Carcassonner, 157
Carlleyle, A.O.L., 147
Carmac megaliths, 152
Carter, Dr., 120
Casal, J.M., 112, 138, 172
Caucasue Mediterranean region, 5
Chanda district, 144
Chandoli, 123, 128, 164
Chandravalli Excavations, 4, 112
Chatnalli, 43, 45, 48
Chennapur, 24
Chick Benkal, 73, 181
Chik Mannur, 91, 92, 130
Chikamagalur district, 141
Chikanhalli, 57, 112
  Excavations, 113-14
Chikanhalli megaliths, 86, 121, 142, 168
Chikkuruvatti, 44
Chikmagalur district, 146
Chilapur, 8, 16, 31, 35
Childe, Gordon V., 3, 188, 189
Chincholi, 49
Chingleput megaliths, 5, 138, 142, 144, 146
Chingundi, 91
Chinnamettukkalai, 146
Chirchir pori megaliths, 151
Chitradinga, 70, 140
Chittapur, 49, 57
Chittor district, 140, 142
Cochin megaliths, 5, 138
Coimbatore district, 141, 144, 145
Cole, R.A., 141, 149, 172, 220
Congreve, A., 4
Coorg district, 141
Coorg megaliths, 144, 160, 167
Copper objects, 179
Cordington, K. De B., 198
Cornelius, J.T., 189
Cornwall megaliths, 152
Cousens, H., 30
Cromlech Hill, 37
Cudapahs, 15
Cuddapah, 140, 146
Cyprus, 148

DADAMARAHATTI, 21
Dadampatti, 143

Daddi, 15
Daniel, Glyn, 3, 21, 148, 149, 151, 152
Dart, R.A., 196
Dartmoor megaliths, 152
Davison, Dorothy, 3, 150
De Cabana Arqweta megaliths, 150
Deccan College Post-Graduate and Research Institute, Poona, 43, 71, 95, 132
Deccan trap, 10, 11, 12, 15, 22, 30, 49, 58, 63, 144, 155
Deccan trap megaliths, 91-2
  Environment, 91
  Raw materials and dressing, 92
  Sites, 91-2
  Type ; Pit-circles, excavations of, 131-1
De lo font del Roure megaliths, 150
Denmark, 151
Deo, B.K., 5
Deo, S.B., 91, 123, 145
De Terra, H., 147
Devanur district, 140
Dharmavaram, 140
Dharwar district, 7, 9, 15, 42, 63, 64
Dharwar Rocks, 10, 16, 24, 37, 42, 49, 63, 156
Dharwar Rocks megaliths, 6, 42-8
  Environment, 42
  Raw materials and dressing, 48
  Sites, 42-3
  Types, 43-7 ; Cairn stone-circle, 43, 44, 45 ; Free standing chambers, 43, 44, 46-7 ; Passage chambers, 43, 44, 45-6, 48, 158 ; Round barrows, 43, 44-5
Dhavalikar, M.K., 176, 213, 220
Dhulia district, 144
Diamanhal, 52, 53, 54, 57
Dikshit, K.N., 70, 189
Dikshit, M.G., 91, 144, 145
Dindgi taluk, 91
Domestic articulture, 217-218
Don river, 49, 52, 54
Durgad Dadi, 73, 129, 181
Durga Temple, 89
Dyavar Ere, 44, 131
ETTUPUTTUR, 146
Egypt, 148
Ekmai, 57
Elliot, W., 198
Elliot Smith, G., 3, 148
Erick Peet, T. 3
Espolla Province Gerona megaliths, 150
Europe, Western, 3, 4, 21, 137, 138, 148, 150-1, 152, 154
FAWCETT, 70
Fergusson, James, 3
Foote, R.B., 64, 65, 72, 79, 145
France, 149, 151, 152
Fraser, W., 143
Frere, R.B.E., 148
GAJENDRAGAD MEGALITHS, 26, 65, 86-90, 127, 143, 169
  Pit Burials, 87-8, 168
  Sites, 86-7
  Types, 88-90 ; Gugalmari megaliths, 88-9 ; Hirehal, Kurgovinkop, Kittur and Kullur megalithic remains, 89-90
Gajjalakonda megaliths, 138, 139, 145
Galapalli, 70, 140
Ganagitti Gudda, 67
Gangavati river, 9, 11
Gangawati Hills, 68, 72, 73
Garstin, J.H., 139, 142
Garudanahalli, 161
Garudanapalya Megaliths, 140, 141
Gaudageri, 87
Gazetteer of the Bombay Presidency, 37
Geological Survey of Hyderabad State, 64, 78
Ghataprabha river, 11, 15, 16, 17, 37, 164
Ghodageri, 19, 20, 21, 22, 163
Ghosh, B.K., 194
Ghurye, G.S., 148, 188
Gloucester Tomb, 151
Goa, 9
Godavari river, 12, 142, 144, 173, 174
Godchinmalki, 20, 21, 158
Gogi, 84
Gokak, 15, 17, 24
Gold-mining Sites, 12, 156
Gold objects, 179
Gopal Bhattava Hola, 89
Gordon, D.H., 5, 80, 123, 182, 189, 190
Gorkal megaliths, 50, 78, 79, 164
Gowland, 3, 148
Gudageri-Unachgeri megaliths, 169
Gudde Maradi, 146
Gudibanda, 140
Gugalmari, 86, 87
Guha, B.S., 187, 195
Gulbarga district, 4, 6, 7, 9, 10, 49, 50, 57, 63, 81 91, 143
Guledgudda, 16, 30, 35, 145, 146
Gumachinnaradi, 19
Gunha Baix Tomb, 149
Guntakal, 70
Gupta, S.P., 188, 190
Gurmatkal, 58
Gururaj Bhatt, P., 141
Guraraj Rao, B.K., 5, 144, 146, 199, 226
HAGAI RIVER, 64

Hagaratagi, 49, 58, 86, 111
Hagartagi megaliths, 50, 52-4
Type ; Cairn Stone Circles, 54 ; Chambers with or without port-hole, 53 ; Passage Chambers, 52-3, 150 ; Port-holed dolmenoid cists, 53-4, 160 ; Round Barrows, 54
Hagartagi Tomb, 53
Hagari Bommanabali, 46
Haimendorf, C., 3, 5, 188, 189, 198, 212
Hal Halur, 89
Hal Hola, 89
Halabhavi, 80
Halasargaum, 72
Halingali megaliths, 16, 26, 27, 29, 98, 100, 109-10, 169
Type, Cairn Stone Circles, 8, 95 ; Passage Chambers, 69, 149, 150
Hallihal, 43, 45, 48
Hallur, 42, 43, 44, 45, 132
Hallur excavations, 95, 123-3
Hallur megaliths, 157
Type ; Passage Chambers, 7, 37
Hampasagar, 72
Hampi, 10, 145
Hampton, 179
Hangandi, 26, 27
Hangandi megaliths, 6, 16
Type ; Passage Chambers, 16
Hanamsagar, 8, 15, 81, 86, 152
Hangali megaliths, 8
Hanuman (Monkey God), 129
Harali—Ainpur, 157
Harding, H.O.D., 143
Harold, Peake, 48
Hasan district, 141
Hushampet, 143
Hathiapahar, 147
Hattargi, 16, 21
Hathi Gold Mines, 10, 64
Haveri Taluk, 44
Hein-Goldern, 188, 189
Heras Father, H., 194
Hexagonal Tank, 35-6
Hidakal, 19, 21, 96
Hingani, 130, 164, 165
Hiranyakeshi river, 16, 17
Hire Benkal megaliths, 6, 7, 36, 50, 72-5, 77, 78 95, 129-30, 156, 164
Classification, 73
Sites, 72-3
Types ; Oblong Dolmenoid cist, 74 ; Polygonal Chambers, 74-5 ; Port-holed Chambers, 73, 74
Hire Kuruvatti, 44
Hirehal, 86, 90, 164
Megalithic remains, 89-90
Hirehal Neolithic habitation site megalithic potters, 127
Hole-Alur, 86, 89, 90, 164
Honnali, 42
Honnawar port, 9
Honnia, 22
Honnikal Hola, 52
Hosa Nagara, 146
Hospet, 10, 64
Hough, 179
Huligund, 65
Hunasgi, 57
Hunur, 17, 19, 20, 21, 22, 149, 168
Hunur excavations, 96-7, 98
Hunnur monument, 167
Hunt, B.H., 4, 143, 195, 207
Huvina-hadagali, 46
Hyderabad State, 4, 9, 156
Department of Archaeology, 6, 50, 54, 55, 64, 65, 72, 78, 80, 82, 91, 123, 181
Department of Geogloy, 6, 50, 52, 66, 79, 91, 147

IJERI, 57, 58, 61
Ijery Site megaliths, 62
Inverness—Shire megaliths, 149
Iralabanda, 140, 141
Iran, 5, 148, 151
Ireland, 151, 152
Iron Objects, 109-10, 125-7, 176-8, 221
Itigatti, C.V., 10
Ittigebailu, 142

JADIGENALLI, 138, 144, 145
Jaina Cave Temple, 31, 32, 33
Jaina Meguti Temple, 31, 32, 33
Jaknur, 91
Jalal Bhavagala Dumi, 38
Jalikatti, 24
Jame, E.O., 167
Japan, 3, 148
Jettin Gudda, 67
Jewargi megaliths, 50, 57-62, 84, 112, 120, 155, 170
Sites, 57-8
Types, 58-61 ; Barrows with and without passage, 60-1; Cairn Stone Circles with passage, 59-60 ; Cairn Stone Circles without passage, 59 ; Cists, 61 ; Round Oblong Barrows, 58

Jewargi (Bk) 57, 58, 61, 112
Jewargi (Bk) Excavations, 114-19
First Cairn, 114-19
Second Cairn, 114-15, 169
Third Cairn, 115-19, 169
Fourth Cairn, 116-17, 169
Cairn B, 117-18, 169
Cairn C, 118
Cairn D, 118, 169
Cairn E, 118-19, 169
Jewargi (Bk) megaliths, 143, 144, 145, 146, 157, 165, 168
Jewargi (Kd), 57
Joseph, Raftery, 152
Joseph, T.K., 143
Joshi, R.V., 16, 24
Joyner, R.B., 96
Jukur, 78
Junapani, 5, 91, 144, 145
KABBINADA TIPPI HOLA, 67
Kadaramandalgi, 44, 47
Kadekalvadi, 49
Kadkal, 65, 168
Kagine river, 58
Kajekaru, 141
Kaladgi group megaliths, 17, 37-41
Orientations, 38
Raw Materials and dressing, 39-40, 48
Sites, 37-8
Types, 38-40 ; Passage Chambers 7, 38-9, 45, 46, 51, 54, 139, 140, 155, 158, 159-60 ; Port-hole Chambers, 163 ; Stone-circles, 39
Kaladgi series megaliths, 15-41, 42, 49, 50, 63, 86, 89
Aihole group, 17, 23, 30-6
Environment, 15-16
Kaladgi group, 37-41
Konnur group, 17-23, 32, 33, 51, 55
Location, 15
Morphological classification, 17-41
Saundatti group, 17, 23, 24-6, 33, 36, 51, 62
Sites, 16-17
Terdal group, 17, 21, 26-30, 62
Kaldevanhalli, 50
Kali river, 9, 11
Kallur, 86, 164
megalithic remains, 89-90
Kalyana, 10
Kalyana Chalukya, 10
Kalyandurga, 140
Kamalapur, 43, 44, 132
Excavations, 132-3
Kanvi Siddigery, 46
Kapi megaliths, 145
Kappatgudda range, 156
Karachi, 148
Kardigudda, 78, 79
Karikantangal, 142
Karna, Prince, 112
Karnataka :
Department of Archaeology, 58, 84
Department of Geology and Mines, 24 ; Excavations, 190-1
Karnataka megaliths
Architectural form, 9
Burial contents, 7, 8, 9
Classification, 7
Structural details, 7, 8, 9
Types, 7-8 ; Cairn Stone Circles, 8, 9 ; Chalcolithic round Barrows, 8, 9 ; Cists, 8, 9 ; Menhirs, 8 ; Oblong Chambers, 8, 9 ; Passage Chamber Tombs, 7, 8, 9 ; Port-holed Chambers, 8, 9
Karnataka University, 46, 95, 132
Karnataka University, Kannada Research Institute, 6, 42, 43, 71
Karwar port, 9
Kashmir megaliths, 147
Kaveri river, 10, 12, 173
Keis, 73
Kemman maradi, 46
Kennet megaliths, 149
Kerala, 3, 6, 12, 139, 143, 147, 166, 173
Kerlescan megaliths, 149
Kerugovinkop, 164
Kesarapalli megaliths, 5
Khasis (Assam), 3
Khuntitoli, 147
Khyaddigeri, 8
Kilreeling Cokerry, 152
King, William, 16, 142
Kittur, 24, 86, 164, 165
megalithic remains, 89-90
Kivik tomb (Sweden), 186
Kodaikanal, 141, 144
Kodekal, 52, 53, 54, 55, 56, 57, 163
Kolar district, 140, 141, 145, 156
Kolhapur district, 12, 157
Kolingudda, 141
Kollur, 57, 58, 139, 140
Konnur megaliths, 6, 16, 17-23, 32, 33, 51, 55 96, 121, 154, 163
Location, 17
Raw materials and dressing, 27, 36
Types, 17-22 ; Cairn stone circles, 21-2, 51 ;

Frequencies, 22-3 ; Passage chambers, 6, 7, 8, 16, 17-21, 24, 26, 27, 38, 54, 139, 150, 155, 157, 158-60 ; Round barrows, 21 ; Small square chambers, 21
Koppal, 72, 73, 77, 78
Koppat Gudda, 78
Koramangala, 141
Kosgi, 64, 70, 142
Kotengundu, 79
Kotia megaliths, 147
Kottur Basppan Phadi, 89
Krishna, M. H., 4, 72, 112, 198, 211, 212
Krishna Iyer, L.A., 3, 6, 142
Krishna district, 142, 146, 147
Krishna river, 11, 16, 17, 27, 49, 64, 81, 91, 92, 142, 144, 145, 146, 154, 173, 174, 177, 178
Lower basin megaliths, 138, 142, 143
Krishnaswami, V.D., 3, 5, 6, 138, 147, 188
Kuban area, 148
Kuddai-Kallu, 139
Kumadvati river, 42
Kunnathur megaliths, 5, 138, 142, 145
Kupgal Hill, 71
Kupi, 54
Kurkundi, 79
Kurnool, 15, 70, 139
Kurugovinkop, 86
megalithic remains, 89-90
Kyaddigeri, 17, 31, 32, 33, 35
LAL, B. B., 173, 189
Lingusugar megaliths, 8, 50, 68, 168
Types according to L. Munn, 66
Lisbon megaliths, 151
Logan, W., 224
Long Mog, Cumberland, 152
Longhurst, H., 70, 139, 145
Los Millares tomb, 151
Lothal, 132
MACKENZIE, J.S.F., 4, 141
Madalmatti, 16, 26
Madanlal, 130
Madnahalli, 91, 92
Madurai district, 141, 143, 144, 145
Mahadevan, C., 49, 50
Mahalingam, T.V., 175
Maharashtra, 9
Malprabha river, 11, 16, 17, 24, 30, 31, 87, 89 145, 164, 165
Male Mallapur Temple, 78
Maleyammano Ooty, 73
Malhotra, K.C., 188
Malkhed, 10
Mallapur, 64, 77, 140
Mallur-Vitragal, 86
Malvan port, 12
Malyarayan megaliths, 3
Mamandur megaliths, 139-40
Mamdapur, 15
Managondanahalli megaliths, 141, 147, 166
Manappaya Gudda, 67
Mandapur, 81
Mandewall, 57, 58, 61-2
Mangalore, 141
Manoli, 16, 24
Manvi, 78
Manvi megaliths, 65, 78-9
Pit-burials, 124
Sites, 78
Types, 78-9
Maragal megaliths, 141
Marathwada, 91
Marayur megaliths, 141
Markendeya river, 16, 17
Mashalli megaliths, 141
Maskanal, 50, 51, 111
Maski, 10, 49, 64, 65, 66, 68, 79, 81, 86, 90, 156, 164
Maski excavations, 6, 95, 96, 98, 123, 165
Maski megaliths, 2, 111, 121, 124, 125, 127, 128, 129, 130, 132, 133, 143, 146, 164, 165, 168
Sites, 79
Types, 79-81 ; Cairn stone circles, 79-80
Stone alignments, 79, 80-1
Matbal, 79
Mattavaru megaliths, 146
Maula Ali megaliths, 143, 179
Mavanur, 22
Mediterranean region, 3, 148, 151
Megalith
Tern definition, 3
Megalith builders, 188, 97, 225-6
Defusion from Iran or Eastern-Mediterranean region, 189-91
Iron, 192
People, 192
Megalithic architecture, 189-91, 217-20
The Megalithic Culture of South India (B.K. Guru Raja Rao), 5
Megaliths, Chronology of, 198-216
Metal objects, 176-9

Mirzapur district, 147
Mitra, 198
Mori Matti Ani, 51, 111
Moriyar Gudda, 73
Moriyar Mane, 46
Motebennur, 43, 47
Mottebennur dolmen, 167
Muccha Kutte Parsai, 167
Muddebihal, 49, 50
Mudgal, 68
Mudheguloor, 140
Mudigallu, 140
Mukherjee, S.K., 49
Mulhern, J., 142
Mullapuram, 70
Mundas (Chota Nagpur), 3
Mungapet, 36, 142
Munn, L., 12, 64, 65, 66, 73, 80, 128, 156, 186
Muradoddi, 147
Muthukad megaliths, 142
Myodar Bande, 77
Mysore district, 141

NADIGUDIKETAR, 19, 21, 22
Nagarjunadona megaliths, 5, 138
Nagaraja Rao, M.S., 43, 95, 132, 167, 172, 175, 179, 188, 194, 195
Nagarjunakonda megaliths, 143, 145, 165, 169
Nagenahalli, 46
Nagvand, 42, 43, 44, 45, 145, 146, 164
Nallampatti, 145
Naranamangalam, 146
Narasimha, B., 97
Narmada river, 10, 12, 132
Nattukal Palaiyam, 143
Nayakaneri, 140
Neelgund, 44, 156
Nellor district, 140
Nevasa, 123, 128, 164
New Grange megaliths, 149, 150
Nilaskal megaliths, 8, 146, 147, 166
Nilgiris district, 141
Nilgiris tribes, 4
Nirvanhatti, 19, 21, 22
North Arcot district, 139, 140, 142, 145, 167
North Kanara district, 9, 11, 63
North Karnataka :
- Area definition, 9-10
- Climate and rainfall, 11
- Historical importance, 9-10
- Physiology, 10-11
- Prehistoric culture, 11-12

North Karnataka megalithic culture, 154-97, 217-26
- Architecture, 217-20
- Economy, 220-2
- Location of the sites, 154-6
- Megalithic sites, 217
- Metal objects, 154, 176-9
- Modes of the burials, 154, 168-71
- Pottery, 154, 171-6
- Rock paintings, 154, 180-6
- Salient features, 217
- Skeletal remains and megalith builders, 154, 187-97
- Tombs, Passage chambers, 157-60 ; Port-holed chambers, 160-3 ; Developmental implications, 161-3 ; Tomb types and other monuments, 154, 156-68
- Unchambered burials, 163-6
- Utilitarian objects, 221-3

North Karnataka megaliths :
- Areas of concentration (type-wise), 199
- Areas of the development and mutual influence (type-wise), 199-200
- Chamber tombs, Orientations of, 207-8
- Chamber tombs types, Development of, 202
- Chronology, 199-216 ; Brahamigiri evidence, 210 ; Materials of significance, 199
- Comparisons, 137-53 ; With foreign megaliths 148-52—General observations, 152-3 ; Passage chambers, 149-51, Port-holed chambers, 151-2, Stone alignments, 152
- Environment, 11-12
- Excavation of sites, 93-133
- Geographical continuity (type-wise), 200-2
- Megalithic types, Development of, 202-16
- Passage chamber type, Development of, 203-5
- Passage chamber (Kaladgi) type, Development of, 205
- Passage chamber (Konnur) type, Development of, 203-4
- Port-holed chambers type, Development of, 202-3, 205-8
- Port-holed chambers (Aihole) types, 213
- Port-holed chambers (Rajankolur) types, 213
- Port-holed chambers (Western Ghat and Coastal region) type, 205-7
- Pottery, 208-11
- Types ; Burials, 143-4 ; Cairn stone circles (of the pit-circle type), 96, 122, 123-31 ;

Dolmens with or without port-holes, 96, 111-12 ; Passage chambers (Greek or Latin Cross type and passage circular chambers), 99-111 ; Polygonal (irregular) chambers, 96, 133 ; Monuments, 166-8 ; Menhirs and stone alignments, 95, 133, 214—16 ; Oblong cists or dolmenoid cists, 143 ; Oblong dolmenoid cist or cists with or without port-holes, 96, 112 ; Passage cairn stone (cist or pit) circles, 96, 112-21, 120 ; Passage chambers, 96-111, 139-40 ; Passage chambers (Kaladgi type), 111, 213-14 ; Passage chambers (Konnur type), 213-14 ; Pit-burials, 96, 122-3 ; Pit circles, 144-5 ; Polygonal chambers and rock shelter chambers, 166-7-Port-holed chambers (Brahmagiri type), 140-1 ; Port-holed chambers (Rajankolur and Hire-Benkal type), 139, 141-3; Port-holed dolmenoid cist-circles, 96, 111 ; Rock shelters and irregular polygonal chambers, 147 ; Rock shelters chambers, 96 ; Round barrows, 96, 131-3; Round or oblong barrows, 145-6 ; Small square chambers, 96, 111, 139, 140 ; Stone alignments and menhirs, 146-7

Nowton, L.A., 172

Nymps-field megaliths, 150

ODUGATTUR DISTRICT, 140, 142

Octi Hall, 55

Ordem megaliths, 149

Ornaments, 222

Osmanabad district, 144

PADALUR MEGALITHS, 146

Paiyampalli megaliths, 138, 144

Pakistan, West, 148

Palagiri megaliths, 140

Palki Gundu, 78

Pallikonda, 167-8

Palunch Taluk, 36

Panchmukhi, R.S., 4, 198

Pant Y Saer (Anglesey), 151

Paramand Hill, 86

Pattadakal, 10, 16, 30, 31, 33

Pattadakal megaliths, 16, 34, 163

Peacock Gorge, 24

Peake, H.J.E., 3

Pelly, 46, 64

Peninsular gneissic complex zone megaliths, 63-90, 155
- Belhatti-Devihal area, 78
- Central and eastern area, 75-77
- Environment, 63-4
- Foot of the Hills area, 77
- Gajendragad group, 65, 86-90
- Lingsugur group, 65-70
- Mallapur and Koppal group, 77-8
- Manvi group, 65, 78-9
- Manvi group, 65, 78-9
- Maski group, 65, 79-91
- Piklihal group, 68, 70, 133, 138
- Sanganakallu-Hire Benkal group, 65, 70-8
- Shahapur group, 55, 81-6
- Sites, 64-5
- Tawargi group, 66-8
- Western group, 73-5

Periakanal—Devikolam Road megaliths, 141

Perisandra Megaliths, 140, 146

Persian Gulf, 148

Perumal Malai, 188

Perumal Palaiyam, 145, 156

Perumbair, 175

Perunduri, 144

Phillips, Maurice, 198

Piklihal, 65, 68

Piklihal excavations, 95

Piklihal megaliths, 68-70, 133, 138
- Types according to F.R. Allchin, 68-70 ; Cairn Stone Circles, 68, 70 ; Dolmenoid cist with fore court, 68-9, 70 ; Passage chambers, 8, 139 ; Stone alignments, 69-70

Pochampad megaliths, 138, 142, 145

Poduval, Vasudeva, 141, 143, 147

Polechetti Cherugudda, 143

Pondicherry, 112, 142

Porkalam megaliths, 138

Portugal, 149

Pot-burials, 97-8

Pottery, 105-8, 110-11, 125-7, 171-6, 221-2

Prado Lacara tomb, 149

Problems of South Indian Megalithic Culture (S.B. Deo), 5

Pudokkotai megaliths, 5, 138, 142, 144

Pujari Hola, 52

Pulimattu, 143

Pulney megaliths, 140, 141, 143, 147, 160

Pupparakuty, 147

RACHANHALLI, 81

Raghavan, M.D., 146

Raichur district, 6, 7, 9, 10, 15, 63, 64, 65, 70, 78

Raichur doab, 45, 143, 144, 145, 155, 163-4, 165

Raigir, 143

Rajalabanda, 78, 79, 164

Rajankolur megaliths, 50, 54-7, 86, 111
  Raw materials and dressing, 56-7
  Site, 55
  Types, 55-6 ; Cist circles, 56 ; Chambers with or without port-hole, 55-6 ; Port-holed chambers, 141-3, 160-1, 162 ; Small dolmenoid cists and cist, 56
Rajankolur-Tirth, 55
Rajasthan megaliths, 147
Rajawala megaliths, 43
  Site, 46
  Type, 46-7 ; Passage chambers, 7, 37, 46, 150, 158
Rajawalam, 72
Rajur, 87, 125, 126-7
Rakhamgeri, 81, 82, 86
Rakhamgeri megalithic habitation site, 128, 129, 155
Ramachandran, K.S., 4, 139, 148, 189, 198, 216, 225
Ramaswamy, L.V., 193
Ranchi district, 147
Ranjala, 91, 144, 145
Ranni Reserve megaliths, 142
Rao, S.R., 148
Rashtrakuta, 10
Ratnagiri district, 12
Ravikirti's inscription, 31
Ravur, 57, 58
Rayandurga, 70, 140
Rayapuram, 72
Reddy, V.R., 178
Religion, 224
Reverala, 146, 147
Richards, F.J., 139
Rigveda, 198, 223-4
Rock paintings, 154, 180-6, 223
  Animal figures, 183
  Chronology, 180-1
  General characteristics, 184-5
  Geometrical designs, 183-4
  Human figures, 182-3
  Implications and authorship, 185-6
  Location and description, 181-2
Rodmarton tomb, 151
Ronas Hill, 150
Roy Choudhury, D., 187
Roy Chowdhury, 188
Ruben, Walter, 188, 189
Rybot, N.V.L., 147

SAGGI, 82
Sahyadri belt, 11
Saifuddin Daragah, 37
Saifuddin Gudda, 37
St. Eugene tomb, 151
Salvadgi, 50, 51, 57
Sampgaon, 24
Sandur, 72
The Sangam, 198
Sanganakallu, 70, 71, 72, 146
Sanganakallu excavatlons, 6, 95
Sanganakallu—Hire-Benkal group megaliths, 65, 70-8
Sangappan Maradi, 58
Sankalia, H. D., 71, 132, 148, 164
Sankhavaram, 146
Sanna Moriyar Tatte, 77, 78
Sannarasamma Hill, 71
Sante Bazaar Doni, 67
Samur megaliths, 3, 123, 139, 144
Sardinia, 149
Sarkar, M., 138, 217
Sastri, K.N., 148
Saudamma Hill, 71
Saundatti megaliths, 15, 24-6, 33, 36, 51, 62, 110-11
  Sites, 24
  Types, 24-6 ; Passage chambers, 24-6, 27, 32, 157, 158 ; Round barrows, 24, 25, 30
Savalgi, 121, 155
Savanadurga megaliths, 140-1, 142, 161
Savargi, 17
Saxena, K.K., 148
Scandinavia, 149
Schaeffer, 151, 190
Schrader, F. Otto, 193
Scotland, 149
Sedam, 49
Sen, D.K., 187, 195
Sendri-Loni, 144
Senganom, 146
Sepulchral architecture, 218-20
Seshadri, M., 6, 138, 140, 141, 144, 145, 146, 148, 172, 177, 198
Severn Costwold, 150
Shahabad, 57, 58, 61, 62
Shahapur, 49, 50, 57, 81, 82, 83, 84, 85-6, 129
  Megalithic Cultural Remains, 128-9
Shahapur megaliths, 65, 81-6
  Sites, 81-2

Types, 82-6 ; Cairn Stone Circles, 82 ; Stone alignments, 83-6
Shakapur, 10, 82, 83
Shankar Gund, 31
Sharavati river, 9, 11
Sharma, A.K., 147
Sharma, Y.D., 138
Shatahavan Coins, 112
Shatapatha Brahmana, 198
Shetland, 150
Shevroy Hills, 143
Shimoga district, 7, 8, 146
Shorapur, 49, 50
Shorapur doab, 143, 144, 146, 155, 163, 165
Shringeri, 141
Sialk VIB megaliths, 151
Sidenur, 43, 45, 48
Sindhogi, 10, 24, 25, 32, 146
Sircar, D.C., 194
Skeletal Remains, 126, 187-8
Somesvara Gudda, 87
Someshavara Hill, 125-6
Someshvarpeth, 167
Sonnapanahalli, 141
Soundara Rajan, K.V., 5, 138, 139, 166, 177, 188
Soundatti, 16, 25, 26
South Arcot district, 139
South Indian megaliths
Study, 3-12
South Kanara district, 7, 9, 141
Souttoukemy megaliths, 112, 138
Spain, 150, 151
Srinivasan, K.R., 5, 142, 168, 188, 198
Stacul, Cioring, 148
Stoney Littleton Somerset, 150
Subba Rao, B., 5, 6, 44, 64, 70, 71, 95, 172, 175, 188, 189, 192, 193, 198
Subrahmanyam, B.R., 148, 177, 190
Sundara, A., 37, 45, 46, 86, 126, 128, 130, 132, 146, 150, 160, 165, 167, 172, 173, 174, 178, 179, 209, 211, 224
Sundara, G.R., 141, 143, 147, 165
Sunkeshwar, 79
Swat area, 148
Sweden, 151
TADBIDI, 81, 85
Tadbidi megalithic habitation site, 129
Takalghat, 144
Talavarana Mule, 77
Talikot megaliths, 50-2
Sites, 50-1
Types, 51-2 ; Cairn Stone Circles, 51-2 ; Port-holed dolmenoid cist, 51-54
Talish basin, 151
Tallihal, 89
Tallur, 24, 26, 131, 145
Talu, 151
Talya, 140
Tanjavur district, 146
Tamil Nadu, 6, 12, 140, 144, 145, 172, 175
Tapi river, 91, 144
Tawargeri megalithic remains, 66-8
Tawargeri megaliths, 8, 50
Taylor, M., 4, 6, 30, 46, 50, 52, 53, 54, 55, 57, 58, 60, 61, 62, 64, 70, 72, 73, 82-4, 85, 86, 95, 111, 112-13, 121, 164, 179, 187
Tekkalakota, 167
Telangana, 143
Telgi, 44
Tengakkal Estate, 143
Terdal megalith I, 100-2, 104, 105, 169
Terdal megalith II, 100, 102, 104, 105
Terdal megaliths, 16, 17, 21, 26-30, 62, 98, 157
Raw materials and dressing, 30, 36
Sites, 26-7
Types, 27-30 ; Cairn Stone Circles, 8, 27, 29-30, 95 ; Passage chambers, 27-9, 35, 68, 149; Passage chambers (Greek or Latin Cross type), 7, 27-8, 30, 150, 157, 168 ; Passage chambers (Konnur group type), 27-8, 29, 30; Small square chambers, 27, 29
Thapar, B.K., 5, 6, 8, 64, 79, 80, 90, 95, 108, 111, 122, 123, 138, 171, 172, 177, 179, 198
Timapur, 79
Timmappayya Gudda, 67
Tinthni, 81
Tiruchirapalli district, 141, 144, 146
Tirunelvelli district, 144, 145
Tiruvalangadu, 142, 168
Tondon, O. P., 177-79
Topi-kal, 139
Tormfiova, T.A., 148
Tungabhadra river, 11, 12, 42, 46, 64, 78, 132, 154, 164, 165, 173, 174, 175, 177, 178
Turner, H.H., 143
Tyrvanur, 140
UDGATTI, 45
Uley, 150
Umman-Nar Island, 148, 152
Unechgeri, 87, 127
Urbanhatti, 19, 22
VAJASSNEVI SAMHITA, 224

Vanstavern, T., 147
Varda, 42
Vellore, 167
Venkatappur, 79, 80
Venkataram, Ayyar, K., 142
Vibhutihalli, 8, 82, 83, 85, 86, 155
Vibhutihalli, megalithic habitation sites, 128, 129, 155
Vibhutihalli megaliths, 7, 8, 62, 146, 166
Vidarbha, 91, 144, 145
Vijanagara dynasties, 10
Vilapatti Valley, 142
Vonlimitta, 140
WADGAON, 144
Waheed Khan, 138, 144, 169, 170, 186
Wainganga river, 144
Walhouse, M.J., 143, 144, 167
Wanke, Lother, 207
Wardha river, 144
Watgal, 79, 90, 81, 128
    megalithic remains, 128, 175
Western Ghat, 11, 41, 146, 160, 161, 178
Wheeler, R E.M., 4, 6, 8, 70, 74, 90, 95, 98, 111, 124, 138, 140, 148, 149, 156, 163, 165, 171, 179, 188, 189, 198, 208, 210, 211, 212
YADGIR, 10, 57
Yeleswaram, 121, 138, 141, 143, 144, 145, 151, 169-70
Yellamma Gudda, 24